

THE GREAT LAKES/SEAWAY:

SETTING A COURSE FOR THE '80s

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A REPORT OF THE PROVINCIAL GREAT LAKES/SEAWAY TASK FORCE

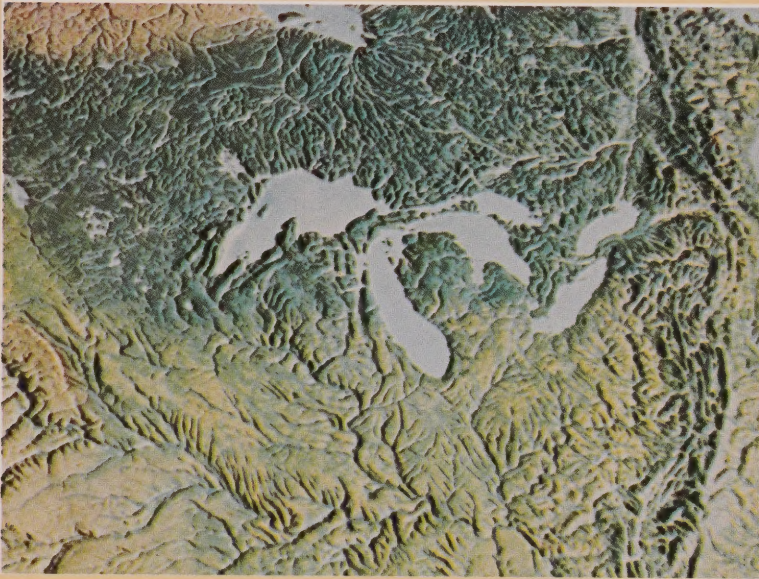


R. S. MISENER, CHAIRMAN

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R. S. MISENER, CHAIRMAN

JANUARY 1981



**ONTARIO GREAT LAKES/
SEAWAY TASK FORCE**

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Source material for these maps included publications of the following organizations:

International Joint Commission
 United States Army Corps. of Engineers
 C. D. Howe Research Institute
 Oxford University
 World Coal Study
 Rand McNally
 Statistics Canada
 Energy Mines and Resources Canada
 Transport Canada

Imperial measures are used throughout this Report. For comparison purposes, the following approximate metric conversions are provided:

14 ft — 4 m 220 ft — 66 m 27 miles — 43 km
 26 ft — 8 m 325 ft — 98 m 2400 miles — 3864 km
 32 ft — 10 m 730 ft — 219 m 1800 miles — 2898 km
 76 ft — 23 m 1000 ft — 300 m
 105 ft — 32 m



Letter of Transmittal

As you directed in your Ministerial statement of March 25, my Task Force members and I have completed our review of the Great Lakes/Seaway Transportation System and herewith submit our report for your consideration.

I believe that our recommendations will assist the Province in developing informed policy regarding this vital transportation mode.

I would like to make special mention of all those who submitted meaningful and informative briefs to the Task Force — particularly those who were able to attend the public sessions and respond to specific inquiries by Task Force members.

I extend my sincere appreciation to my fellow Task Force members. They gave most freely of their time and energies in an effort to sort out those issues they felt important to the System and to develop recommendations which will respond to those issues. The Technical Advisory Committee you provided to us were most helpful in assisting when research and detailed information and data were needed by the Task Force.

The Secretariat, under the able direction of Ms. Margaret Kelch is to be commended for its efforts in the entire process, not the least of which was the completion of this final report.

Thank you, on behalf of myself and the other Task Force members, for allowing us to contribute to this essential process of government policy formulation.

A handwritten signature in blue ink, reading "Ralph S. Misener". The signature is fluid and cursive, with the first name being particularly prominent.

Ralph S. Misener
Chairman



Executive Summary

The Great Lakes/Seaway Task Force of the Ontario Government was convened by the Minister of Transportation and Communications to conduct investigations leading to the creation of policy recommendations for submission to the Province.

In fulfilling the terms of reference supplied by that Ministry, the Task Force also examined volumes of published statistics and other data pertaining to the Great Lakes/Seaway System. This material was important background for the review and analysis of the concerns raised from the information supplied in the public hearings and the briefs.

With the assistance of a Secretariat and a Technical Advisory Committee, the Task Force also examined volumes of published statistics and other data pertaining to the Great Lakes/Seaway System. This material was important background for the review and analysis of the concerns raised from the information supplied in the public hearings and the briefs.

As a result of this activity, three major areas of immediate concern became apparent:

- The Great Lakes/Seaway System in its present form will be unable to meet even minimum traffic growth projections during the coming decade.
- The general public has little or no awareness of the critical economic importance of the Great Lakes/Seaway System to Ontario and indeed all of Canada.
- There are a number of specific issues related to the operation and maintenance of the Great Lakes/Seaway System which require immediate attention.

This Executive Summary will deal primarily with the recommendations to meet and overcome these critical areas. Information on the background and the supporting data that lead to the recommendations can be found in the body of the report.

The inability of the Great Lakes/Seaway System to meet the demands of the decade

A traffic forecast was developed to the year 1985 and compared with the present capacity of the System. From this evaluation the Task Force estimated that the total annual Welland Canal downbound tonnage in 1985 could range from 63 to 68 million, an increase of 20-22 million tonnes one-way over 1979. The 1979 one-way tonnage of 46 million and 3300 transits is only approximately 700 transits shy of the St. Lawrence Seaway Authority's stated one-way capacity for the Welland Canal.

This clearly indicates that the Welland Canal, under present conditions and with the present fleet mix, will not be able to handle the forecasted demand in 1985. This situation would result in serious consequences, not only to Ontario but to western Canada as well. Many commodities would not be able to reach their destinations. Grain, coal, and iron ore could not be delivered. Canadian industry and the Canadian balance of payments would be adversely affected.

The capacity of the present System can be increased by increasing the number of vessel transits, by increasing the average tonnage carried per vessel, or both. The Task Force recommends for the short term that:

- All possible short range physical improvements to the Welland Canal proceed without delay. (Page 52).
- The Ontario Government co-ordinate all agencies affected by a permanent extension of the navigation season and form a working group to resolve the issues related to such an extension. This group should also outline the physical work and procedures necessary to reduce negative impacts, if any, with the awareness that any permanent extension will be subject to an environmental assessment. (Page 52).
- The Federal Government encourage long range commitments for the transport of grain as an incentive to carriers to maintain a modern efficient fleet.

- The Federal Government take a lead role and create a working group of interested parties to investigate the feasibility of allowing ships of more than 730 feet to transit the present System. (Page 53).

While the above short term recommendations, when implemented, will assist in increasing the capacity of the System, it is still unlikely that even all of the improvements combined will allow the System to meet the 1985 forecast demand of 66 to 68 million downbound tonnes. All indications are that demand will be maintained or increased after 1985. Major physical improvements are inevitable, if the System is to grow. The Task Force recommends that:

- Planning and design begin at once for a major enlargement of both the Welland Canal and the Montreal to Lake Ontario Section of the Great Lakes/Seaway System. Such planning should be conducted in concert with United States Seaway interests, and implementation dates should be specified. (Page 53).

The absence of public awareness

It is apparent to the Task Force that the public has little knowledge of the existence of the Great Lakes/Seaway System, much less the economic importance of that System to their daily lives. Affiliated with this lack of public awareness is the deficiency of commercial promotion of the System. The Task Force recommends that:

Public Awareness

- The principal shippers, carriers (through the Dominion Marine Association), related unions, and the St. Lawrence Seaway Authority, be encouraged to recognize that it is in their best interest to raise public awareness of the importance of the Great Lakes/Seaway System to employment and economic well being throughout Canada. The Ontario Government should take the initiative in encouraging these agencies to remind the Canadian public, on a consistent basis, about the vital importance of the System to Canada's future. (Page 61).
- The benefits of the Great Lakes/Seaway System be emphasized at every opportunity to all elected representatives and public officials at each level of government. (Page 61).
- The Ontario Government ensure that the International Joint Commission be regularly made aware of information related to the economic health of the System. (Page 61).
- All user associations be involved in publicizing the System benefits. (Page 62).
- Programmes be funded by the Ontario Government to tell the story of the Great Lakes/Seaway System and its significance to the entire continent. (Page 62).
- Joint Canadian/United States efforts in areas of mass communications (television, film, periodical and daily print media) be utilized to emphasize that the benefits of the Great Lakes/Seaway System transcend national boundaries. (Page 62).

Commercial Promotion

- The Ontario Government and the Federal Government create a marketing agency for the Great Lakes/Seaway System, involving the domestic and foreign offices of the Provincial Ministry of Industry and Tourism, as well as the Federal Department of Industry, Trade and Commerce. The agency should be funded by all interested and/or beneficiary parties. (Page 62).

Issues related to the Operation and Maintenance of the Great Lakes/Seaway System

A number of issues, each important in its own right, related to the efficient operation and maintenance of the Great Lakes/Seaway System were raised. Each was examined and, where appropriate, recommendations developed. These recommendations were developed under the following headings — Navigational Aids, Coast Guard, Incremental Good Weather Season Extension, Pilotage, Merchant Marine, Tolls, St. Lawrence Seaway Authority, International Cargo Constraint, Ports, Shipbuilding and Repair Subsidy, Drydocks and Repair Facilities, Manpower and Training, Safety, Environment, and Dredging. The rationale leading to the following recommendations is contained in the main body of the report on the pages indicated.

The Task Force recommendations by issue are as follows:

Navigational Aids

- Steps be taken to allow floating navigational aids to remain in operation for the full navigation season. (Page 53).
- Research and development be expedited and co-ordinated with present United States efforts for early implementation of improved navigational aids in the System. (Page 53).

Coast Guard

- The Canadian Coast Guard be given adequate funds to develop a meaningful presence in the Great Lakes/Seaway System. (Page 53).
- The duplication of compulsory vessel inspections be eliminated. (Page 53).
- Adequate icebreaking equipment be available in the Great Lakes/Seaway System and the costs of icebreaking be borne by the Federal Government, as in other parts of Canada. (Page 53).

Incremental Good Weather Season Extension

- When weather conditions permit, a season extension be automatically implemented on an incremental basis. Necessary planning for this activity be carried out early in the shipping season. (Page 53).

Pilotage

- The Canadian Great Lakes Fleet be permanently exempted from compulsory pilotage west of Montreal. (Page 54).

Merchant Marine

- Should the Federal Government decide that a Canadian Merchant Marine is necessary to the national interest, Ontario support this decision, provided that (a) the programme does not create a financial burden to the taxpayer; (b) Canadian shippers are not compelled to use Canadian flag vessels; (c) non-subsidy incentives are used to stimulate the development of a Canadian Flag fleet. (Page 54).

Tolls

- The Ontario Government take the position with the Federal Government that any tolls policy on the Great Lakes/Seaway System be closely monitored to assure that the Canadian economy is not adversely affected. (Page 54).

St. Lawrence Seaway Authority

- The St. Lawrence Seaway Authority, a Schedule "D" Crown Corporation, be given all operating freedoms of a Schedule "D" Crown Corporation. It should not

be an administrative arm of Transport Canada. There should be broad representation, including that of the Provinces, on its Board. (Page 54).

International Cargo Constraint

- The Province undertake a review of the import/export rail rate structure to determine the existence and extent of discrimination against Great Lakes Ports and take steps as necessary to eliminate or reduce such discrimination. (Page 54).

Ports

- The Ontario Government formulate a Provincial Ports Policy. (Page 46).
- The Ontario Government indicate to the Federal Government the need for Regional and Provincial representation on all Harbour Commissions. (Page 46).
- The Ontario Government reaffirm to the Federal Government that Port Policy must emphasize both a commercial orientation and decentralized administration. (Page 46).
- The Ontario Government proceed with legislation to create and fund a Provincial Ports Council as a co-ordinating group for commission and non-commission port planning. (Page 46).

Shipbuilding and Repair Subsidy

- The Federal Government be requested to review the shipbuilding subsidy programme and implement a continuous monitoring and assessment effort to ensure that subsidy levels are sufficient to maintain the international competitiveness of Canadian yards and to allow the continued viability of the Great Lakes fleet through vessel additions. (Page 49).

Drydocks and Repair Facilities

- The ship repair capacity in the Great Lakes/Seaway System be expanded. (Page 50).
- The Ontario Government complete their study determining the need for drydocks and repair facilities and recommend the most appropriate location. (Page 50).
- The construction of drydock facilities be financially assisted by both Federal and Ontario Governments. The assistance should be conditional on the assurances that Canadian Flag ships would obtain priority service. (Page 50).

Manpower and Training

- The Federal and Provincial Governments, with the assistance of industry, initiate a statistical programme to determine the numbers of trained seamen and officers required to meet the needs of the Great Lakes fleet. (Page 56).
- The Ontario Government extend its mandate in the training area to include co-ordination of seamen training with existing training programmes. (Page 56).
- The Ontario Ministry of Education develop material aimed at attracting young people into a seafaring career. (Page 56).
- The Ontario Ministry of Education develop special correspondence programmes for Seamen. (Page 56).
- The Ontario Ministry of Education take steps to ensure the secondary school system obtains and displays materials promoting life as an Officer on a Great Lakes vessel as a career alternative. (Page 56).

Safety

- The Ontario Government request the Federal

Minister of Transport to initiate a study to clarify the responsibility for marine safety on the Great Lakes/Seaway System and co-operate in such a study through the Ontario Provincial Police and by encouraging municipal police force participation. (Page 57).

- The shipping industry emulate the practice of other industrial sectors by instituting safety programmes and training sessions. (Page 57).
- The Ontario Government take the lead in requiring that small craft operators be properly educated in the safe techniques essential to the operation of pleasure craft. (Page 58).

Environment

- The Federal and Ontario Governments review the transportation planning process and environmental review process to ensure that necessary information required to reach an informed decision is always expeditiously received. Co-ordination and co-operation of the concerned parties, the proponent, the regulatory authority and the public, must be encouraged at the outset of any project and continue through the process to completion. (Page 59).
- The Federal Department of Environment and the Ontario Ministry of the Environment in implementing the above recommendation examine the overall timing to establish definitive time limits. Extension of any time limits should be allowed when it has been clearly determined that additional data is necessary that was not evident at the beginning of the process. (Page 59).

Dredging

- The Federal Government establish and publicize a long term dredging programme to allow the transportation system to be utilized to its best advantage and allow adequate time for environmental approvals. (Page 59).
- The Ontario Government immediately examine with the Federal Government a method of funding extraordinary dredging procedures related to past pollution problems. (Page 60).
- Where the current source of pollution is known and extra costs are required to dispose of contaminated material caused by such pollution, the polluter be required to pay these costs. (Page 60).
- The Federal and Ontario Governments investigate and review new and existing dredging procedures, and methods of disposing of dredged materials. (Page 60).
- The Ontario Government expedite the review and identification of environmentally sensitive areas. Also identification of potential sites suitable for development with minimal environmental negative impacts should be carried out. (Page 60).

Closing Recommendation

As a final recommendation, the Task Force suggests that upon completion of its work, a permanent structure be established within the Ministry of Transportation and Communications to ensure that the issues identified by the Task Force are properly addressed in the future. Too often, after a report is filed the efforts of a group and the thrust of its report tend to be forgotten.

The Task Force trusts that the above recommendations will provide the basis for an Ontario policy regarding the Great Lakes/Seaway System and the marine transportation industry it supports.

The Terms of Reference

Terms of reference for the Great Lakes/Seaway Task Force as provided by the Ministry of Transportation and Communications included the following:

1. Examine the economic components of the Great Lakes/Seaway System under five separate categories, including —
 - (a) Physical Plant such as locks, canals, ports, vessels and terminals;
 - (b) Waterways Users including carriers, shippers and receivers;
 - (c) The support industries of shipbuilding, outfitting and marine supply;
 - (d) Labour agreements throughout the industry; and
 - (e) Market Mechanisms in effect that impact the use and carrying capacity of the system.
2. Examine the related shipping requirements of the Great Lakes/Seaway System with particular reference to a number of industries including steel, petrochemical, electric utilities, grain and aggregate producers and other industries in order to establish commodity types, volumes, times of movement, and the various resulting flow patterns.
3. Document current policy under which the marine mode operates in both Canada and the United States and compare this situation to the policies in effect in the rail and road transport industries.
4. Identify any environmental concerns relating to marine issues in the Great Lakes/Seaway System in order to be able to respond to specific issues.
5. Describe the problems and outline the opportunities for the province to pursue as they are defined by Task Force investigations.
6. Prepare and publish policy recommendations for consideration by the province through the Minister of Transportation and Communications.

The Task Force



Ralph S. Misener
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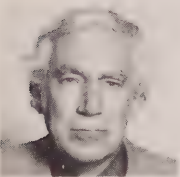
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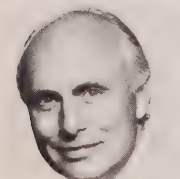
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1

The Purpose

Introduction

The five Great Lakes form the largest body of fresh water in the world. Together with the St. Lawrence River they make up a drainage system which discharges primarily into the Atlantic Ocean and extends inland some 2,400 miles, nearly halfway across Canada. Almost 1800 miles of this system borders the shores of the Province of Ontario.

More than one-third of the entire industrial output of the United States and Canada is produced in the Great Lakes Basin region where 37 million people live, work and benefit from the economic advantages of this wealth of fresh water.

The Great Lakes/Seaway System constitutes an unequalled navigable inland waterway in a region rich in natural and industrial resources. Ever-increasing tonnages of cargo are carried to and from all parts of the globe by water transportation, the most fuel efficient of all transportation modes.

This transportation artery has been largely responsible for the commercial development of the areas surrounding it and of the Prairie regions of North America. Some 200 towns and cities line the Canadian and United States shores of the Great Lakes /Seaway System including Canada's two largest cities, Toronto and Montreal.

The Great Lakes/Seaway System constitutes the southern boundary of Ontario and Canada. From Thunder Bay to 25 miles east of Cornwall, the southern boundary of Ontario and Canada bisects the Great Lakes/Seaway System. Further east, the System is totally within the

Province of Quebec. On the American side eight states border the System, Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania and New York.

The importance of the Great Lakes/Seaway System and its interaction and impact on the economic health of Ontario and Canada are not clearly understood by the general public. Vessels on the System carry commodities which are vital to the economy of Canada and the United States; grain from the west for export, iron ore for the steel mills of both countries, coal for steel production and power generation, fertilizer for the farms, and general cargo within the Great Lakes/Seaway System and around the world.

Direct employment within the transportation system itself and its supporting industries is in the range of 10,000 to 15,000 people. More importantly, the grain industry of Canada depends upon the Great Lakes/Seaway System for the export of about half of its yearly production. Some 200,000 Canadians are directly employed in the production of grain on the prairies. Canadian grain exported through the System in 1979 had a value of almost \$2 billion.

It has been estimated that U.S. grain exported through the System in the same period had a value of \$2.74 billion. Similarly, the steel industry is dependent on the System for movement of raw materials to the mills. The steel industry directly employs some 46,000 people in Ontario. This number does not include people employed at the mines or in industry, such as the automobile plants dependent on steel production.

It is no overstatement to say that the efficiency of the Great Lakes/Seaway System has had, and continues to

have, a very important effect on the well-being of the people of Ontario and indeed, the people of all Canada.

Recognizing this, as well as the need to act decisively to ensure Ontario interests are properly considered by the Federal Government, on March 25, 1980, the Hon. James Snow stated "... the sheer economic importance of this System to Ontario industry ... and the balance of our overall transport system ... compels us to now take a stronger stand on Great Lakes/Seaway policy". (Appendix I contains two statements made by the Hon. J. W. Snow, the Minister of Transportation and Communications, to the Ontario Legislature.)

Mr. Snow announced creation of the Great Lakes/Seaway Task Force to develop policy recommendations that would become the backbone of Provincial policy and position regarding marine transportation.

The Task Force held ten public sessions across the Province, inviting industry, system users, labour, municipalities, interest groups and the public.* These sessions afforded all interested parties an opportunity to submit their briefs, outline concerns, identify important issues and possible solutions as well as recommend their view of provincial involvement and action.**

Several other sessions were held by the Task Force and/or Secretariat staff with specific organizations to allow clarification of certain items of interest and concern to the Task Force.

The results of the Task Force deliberations are presented in the report that follows.

* Appendix IV(a) outlines meeting locations.

** Appendix IV(b) lists those who submitted briefs in the public forum as well as those who wrote to the Task Force. A general outline of the major issues raised is included.

The History

From Birch Bark Canoe to 1000 Foot Bulk Carriers: Seaway History

When settlement of North America began, the water systems provided the only transportation route into central Canada. By the mid 1800s, passengers, mail, general cargo and bulk cargo travelled by water. As time passed, competition from railways, automobiles, trucks, and pipelines narrowed the role of water transportation and it has evolved into a specialized handler of bulk cargoes.

The waterway, referred to now as the Great Lakes/Seaway System, included substantial open water areas, however it also had many confined connecting channels. In its natural state, there were three major barriers to navigation. Several sets of rapids in the St. Lawrence River had to be overcome between Montreal and Lake Ontario. The falls at Niagara were a major obstacle separating Lake Ontario from Lake Erie, and finally, the St. Mary's Falls at Sault Ste. Marie prevented access to Lake Superior. From the 1780s until the present, various projects undertaken to overcome these and other navigational hazards, have created an unsurpassed inland navigation system.

Developments to 1900

Furs and Commerce

Throughout the history of Canada, waterways have played a paramount role in transportation. The earliest

European commercial exploitation of the System was undertaken by fur traders. In spring, trade goods were portaged by wagon from Montreal around the Lachine Rapids to Lachine where canoe brigades were dispatched to travel the Ottawa River, through various water courses leading to Georgian Bay and ultimately to reach Lake Superior. The fur trade existed solely because of the high value of freight carried. It was a unique operation but did not lead directly to greater use of the Great Lakes except, perhaps, in obtaining a better understanding of the waterways of Canada.



A bateau, used for early transport.

Commercial trade on the St. Lawrence in the precanal era grew as central Canada was settled. A small flat bottomed boat called a bateau was developed that could carry about three tons of freight. Most importantly, it was small enough to be pulled through the St. Lawrence rapids by its crew, after part of the cargo had been portaged. At Kingston, freight and passengers were transferred from the bateau to schooners for destinations on Lake Ontario.

Early transportation on the Upper Lakes consisted of transporting people and their belongings to the unsettled interior of the continent. By the 1830s, traffic had developed between Buffalo, Detroit and Chicago bringing settlers into the American mid-west. All materials necessary for, and products of settlement, travelled by water, the only practical and economic means of shipping goods. Iron goods, dry goods, timber, and food stuffs were shipped, along with passengers and grain. There was little Canadian traffic at this time. As settlement proceeded, eastbound shipments of agricultural produce, particularly grain, began. This traffic divided at Buffalo; some going down the Welland and St. Lawrence Canals to Montreal for overseas shipment, and most going down the Erie Canal to New York for export.

Early Canals: a chronology

- | | |
|-------|---|
| 1780s | Three small canals to bypass Coteau and Split Rock Rapids, west of Montreal were excavated primarily for military purposes. |
| 1824 | The first successful Lachine Canal opened with seven locks, each 100 feet x 19.8 feet x 4.8 feet. It was an 8.5 mile canal from Montreal to both the Ottawa and St. Lawrence Rivers. |
| 1825 | The State of New York opened the Erie Canal. Locks were 4 feet deep and 90 feet long. It connected Buffalo with Albany and by means of the Hudson River with New York. It made New York more accessible than Montreal for export goods from the interior of Canada and the U.S.A. |

- 1829 The Welland Canal Company opened the first Welland Canal. There were 40 locks, 110 feet long, 22 feet wide and 8 feet deep.
- 1841 The Welland Canal was acquired by the Government of Canada.
- 1843 A canal near Cornwall was opened after 9 years of construction.
- 1845 A "new" Welland Canal was opened. It had 27 locks, each 150 feet long, 26.5 feet wide and was 9 feet deep.
- 1846 The 11.2 mile Beauharnois Canal opened to bypass the three smaller canals built in the 1780s.
- 1847 Three canals known as the Williamsburg Canals in the most westerly rapids of the St. Lawrence were completed.
- 1848 The enlargement of the Lachine Canal was completed.

A water route was now open between the Upper Lakes (except Lake Superior) to Montreal and the lower St. Lawrence River. Locks were twice the size of those in the Erie Canal

As the finishing touches were being completed on the early St. Lawrence canals, railway construction was making its tentative beginning in Canada. The trunk railway network completed in the late 1850s, almost duplicated routes served by the various canals. Rail was faster than water and operated year round. Passengers, manufactured goods, and produce such as flour were soon carried by rail. Bulk commodities and those items for which speed was not important, remained on the waterways.

One result of railway construction was the development of joint water/rail routes for commodities being exported from the west. In the 1850s, the railways considered that portaging bulk freight across the southwestern Ontario peninsula would be profitable. A number of lines were built connecting such ports as Goderich and Collingwood to water facilities at Buffalo and Toronto for further shipment to United States destinations. As railway lines reached out across the continent, shippers found it more economical and faster to ship non-bulk freight by rail routes.

Grain continued to use the rail and water routes. Most grain was exported, much of it through the Port of Montreal. Bulk carriers from the Upper Lakes could not travel beyond Port Colborne without off-loading some cargo to reduce their draught for passage through the shallow Welland Canal. A similar condition prevailed in the St. Lawrence canals. The Railways offered competitive rates from Ports on Georgian Bay to Montreal and these water/rail routes did not decline until the St. Lawrence Seaway facilities were increased in size in 1959 to allow larger bulk carriers to reach Montreal.

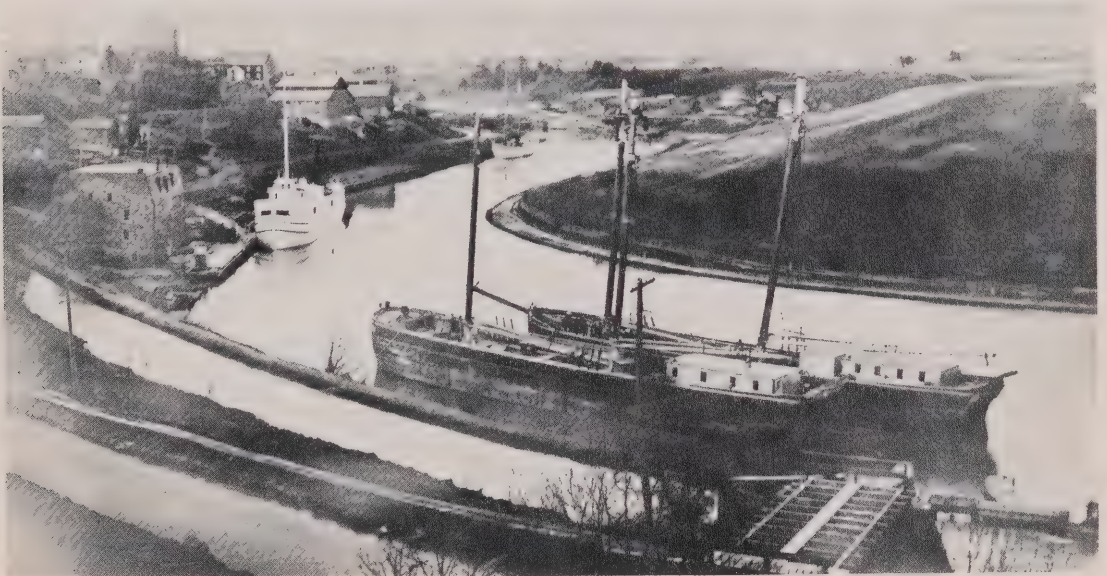
Fourteen Foot Navigation

Despite increasing rail trackage, many shippers believed that the need still existed for an improved inland water system. In 1870, a Royal Commission decided that the water route between Lake Erie and Montreal was not receiving as much grain and other bulk commodities as could be expected. Since most grain shipments originated in the United States, it was not surprising that most grain continued to be moved over American routes. Nevertheless, it was felt that an improved waterway might encourage a reasonable increase in trade on this system, and an increase in canal size would stimulate inter-provincial trade with the Maritime provinces. For some time after the 1850s, a small number of schooners ventured between the Great Lakes and Maritime ports and some carried goods directly from the Lake ports to Britain.

The Royal Commission recommended that all navigation facilities between Lake Erie and Montreal be increased. The standard lock size was 270 feet x 45 feet x 12 feet. The depth was later changed to 14 feet and construction of the total length was completed in the early 1900s. Apart from the Welland Canal, the Fourteen Foot Navigation as it was sometimes called, dictated ship operations in the St. Lawrence River until the Seaway was completed in 1959.

Welland Canal Development Since 1850

As mentioned previously, the Welland Canal was originally built in 1829 and a rebuilding took place in 1845. Major changes that have been made since then are as follows.



Early view of Welland Canal.

The Welland Canal today.



- 1887 The third Welland Canal was completed with 26 locks. The locks were 270 feet long, 45 feet wide with a water depth of 14 feet. Vessels 255 feet long could transit the canal.
- 1932 The fourth Welland Canal had 8 locks, 859 feet long, 80 feet wide with a water depth of 30 feet. 730 foot vessels could now transit the Welland. The major transshipment point was now at Prescott. A type of steamer, approximately 250 feet long, called a canaller was used to travel the remainder of the System to Montreal and the lower St. Lawrence.
- 1951 The St. Lawrence Seaway Authority was created to construct, maintain and operate a deep waterway between Montreal and the Upper Lakes.
- 1973 Several improvements were made to the Welland Canal after 1932 and a major bypass was opened in 1973. A former winding channel through the City of Welland over 9 miles long was replaced by a new 8.3 mile Welland by-pass.

have jurisdiction over boundary water problems between Canada and the United States. There are three Canadian and three United States representatives on the Commission.

As a result of railway transportation disruption in the United States during World War I, discussions were soon underway to initiate the development of a St. Lawrence Seaway System. In 1920, the International Joint Commission undertook a feasibility study of this concept and the report proposed to deepen the waterway from Montreal to Lake Erie. No action came from the report except to lead to commissioning another study in 1924. These two reports submitted findings that were sufficiently different to require more than twenty years to resolve.

A third report by the U.S. St. Lawrence Commission in 1926 recommended an immediate improvement to the St. Lawrence for both navigation and power development. Of particular importance were anticipated declines in transportation costs beneficial to agricultural sectors of mid-western United States.

*Historical Evolution of the Welland Canal**

	Locks	Length Between Gates	Width	Depth of water over sills
First Welland				
Started 1824-Completed 1829	40	110 ft.	22 ft.	8 ft.
Second Welland				
Started 1842-Completed 1845	27	150 ft.	26.5 ft.	9 ft.
Third Welland				
Started 1873-Completed 1887	26	270 ft.	45 ft.	14 ft.
Fourth Welland				
Started 1913-Completed 1932	8	859 ft.	80 ft.	30 ft.
Welland Canal By-pass completed 1973				

* John N. Jackson, *The Welland Canal Systems*

Post 1900 — Seaway developments

Canals and Commissions

The Seaway System came into existence in 1848, when small ships could traverse canals between Montreal and Lake Erie for the first time. By 1900, completion of the 14 foot canals seemed to offer potential for shipping between the Great Lakes and the Atlantic Ocean. Whereas the Welland Canal was completed to 14 foot standards by 1887, the St. Lawrence Canals were not fully transformed until 1903.

A type of steamer, known as a canaller, was developed to operate in the 14 foot canals. The maximum length of these ships was limited to 256 feet with a capacity of 2,800 tonnes. Canallers of these dimensions were constructed until the mid 1950s.

In 1909, the Boundary Water Treaty was passed leading, in 1911, to the creation of the International Joint Commission. The main purpose of this commission was to

Another report, by the Canadian National Advisory Committee, in 1927 was less enthusiastic about the project. Canadian railways had been developed in advance of need and excess railway capacity existed. Moreover, much railway mileage was owned by the Federal Government and construction of the Seaway would only create competition between two state-supported transportation facilities.

A differing of opinions was also evident in technical considerations expressed by a joint Canadian and American Board of Engineers. Canadians favoured a 26.78 foot channel, the Americans 24.7 feet.

Power Development

There was disagreement over the best method to develop the International Rapids section of the St. Lawrence River which had the potential to produce over 1.5 million kilowatts of power. Canadian engineers desired a "two stage development" consisting of two dams. The United

States proposal, and the one ultimately adopted, called for a “single stage development”. A single large power dam would be constructed at Barnhart Island flooding all of the International Rapids section creating a navigation route and a power pool for hydro facilities.

Eventually the need for hydroelectric power brought agreement between the United States and Canada. From excess capacity in the 1920s to a shortage in the 1950s, electric power generation became a turning point in negotiations. Construction costs for facilities jointly used for power and navigation were charged against power development costs.

Three potential power sites existed along the St. Lawrence; at the Lachine Rapids, at the Coteau/Cascades Rapids, and at the International Rapids.

The first power plant installed on the St. Lawrence River was the Montreal Light, Heat & Power Company installation on the Lachine Rapids in 1898. Soon, small plants were established at Morrisburg (1900), Iroquois (1901), Cornwall (1901), Soulange (1908), St. Timothee (1911), and Cedars (1914). They utilized a very small fraction of the waterway’s potential.

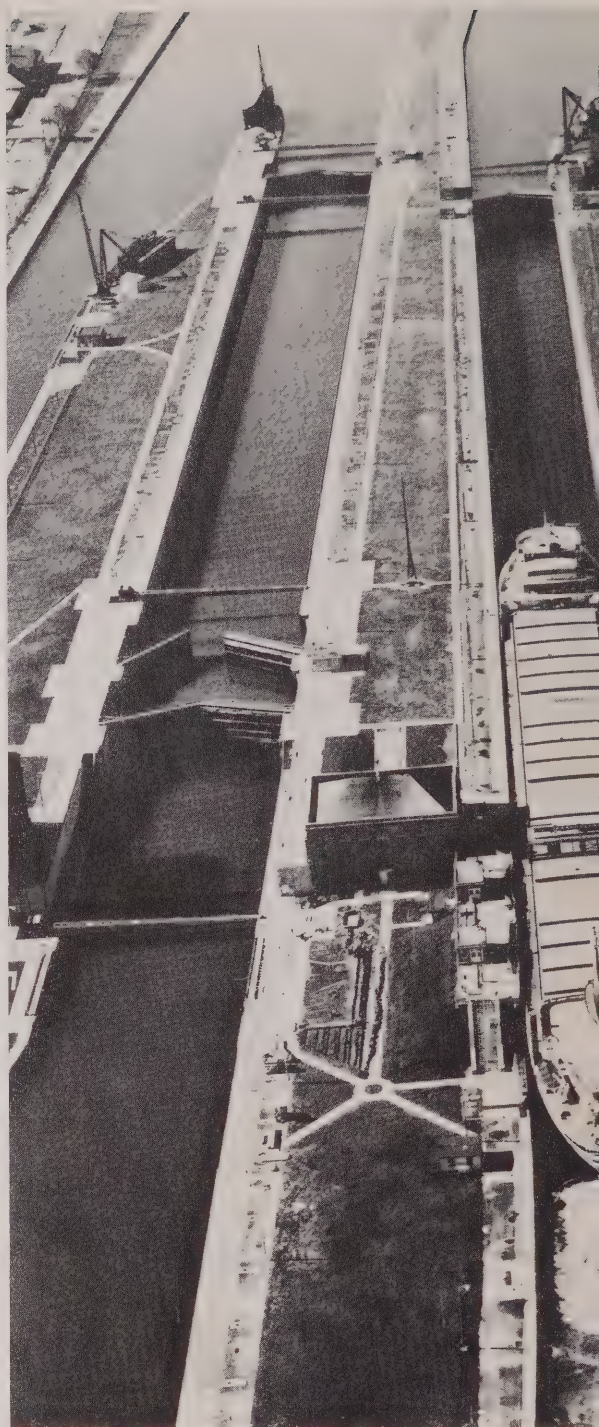
By the 1920s availability of hydro power actually proved embarrassing and retarded early construction of the Seaway. Although the United States might have been able to absorb all power available as its share of development, power available for Ontario was far in advance of its requirements.

In 1932, Canada and the United States concluded the St. Lawrence Deep Waterway Treaty which provided for joint construction of power and navigation projects but it was rejected by the United States Senate in 1934. Four years later, negotiations were reopened with no progress achieved. The war-time need for power once again brought the United States and Canada together in 1940, but a treaty drafted in 1941 failed to get U.S. Senate ratification.

United States Congressmen perceived the cost as too great and the benefits for the United States too few. Substantial opposition also came from coal and oil companies fearing a loss, if the enormous quantities of hydroelectric power were made available. Ports on the Eastern Seaboard feared the Seaway would drain off much of their shipping trade, and eastern business was afraid that the Atlantic States would be hit by a drastic shift of commerce and industry to the northwest.

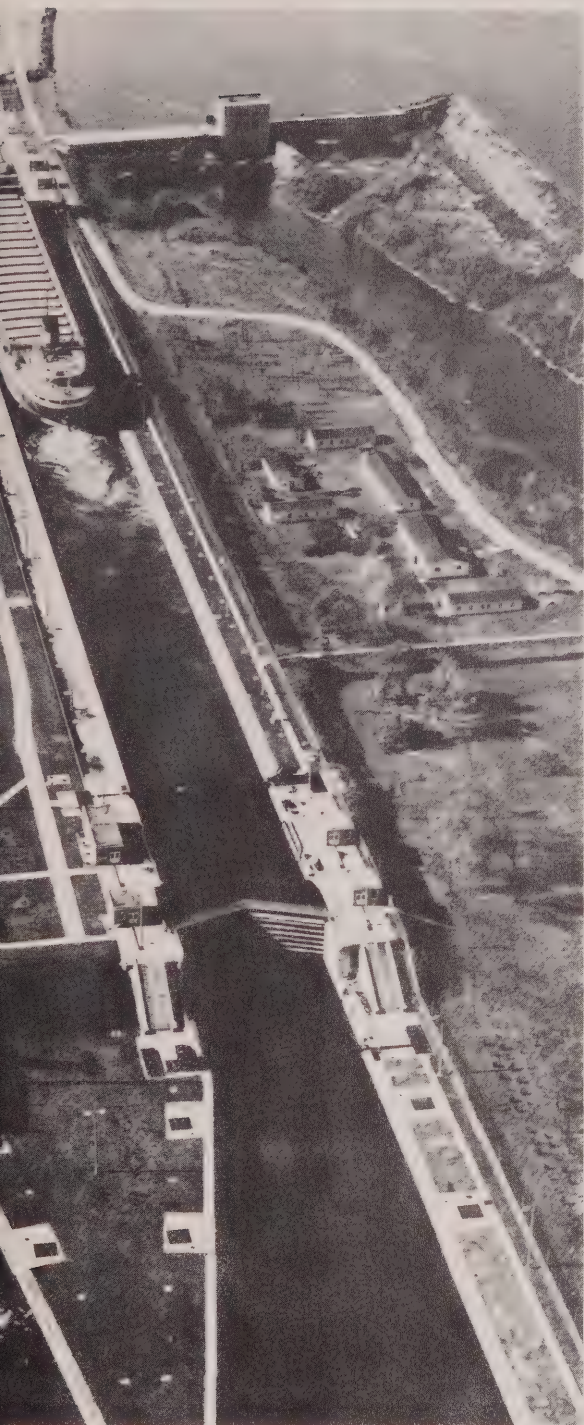
After World War II a number of changes occurred. Vast iron ore deposits were being opened in Quebec and Labrador, requiring deep water navigation for economic transport to steel producing areas around Lake Erie and Lake Ontario. Exports to foreign countries were increasing and small cargo ships were making use of the System. Most importantly, the power potential of the Seaway was now desperately needed by industries in both countries.

In 1951, Canada decided not to wait for co-operation from the United States and prepared to build a power dam at the International Rapids and complete a deep water navigation system of its own. Faced with the politically unpopular possibility of an all-Canadian project, United States opposition finally capitulated and in 1952 the Canadian and United States Governments made a joint submission to the International Joint Commission to harness the water power in this section of the St. Lawrence. A year later, the United States Congress passed enabling legislation to jointly construct a navigation system with Canada. Ground breaking for the St. Lawrence Seaway took place on August 10, 1954.



Reality

The St. Lawrence Seaway Authority was constituted in 1951 for the purpose of constructing, maintaining and operating the Canadian portion of a deep waterway between the Port of Montreal and the Upper Great Lakes. Since the Welland Canal locks were already built to Seaway standards, construction took place between Montreal and



Lake Ontario. This major project began in 1954 and was completed in 1959, with a U.S. entity, the St. Lawrence Development Corporation, responsible for the American portion of the BI-NATIONAL EFFORT.

A canal was built along the south shore of the St. Lawrence to by-pass the Lachine Rapids. Two locks were required to overcome the drop in the river at this point.

Navigation improvements were constructed around the Split Rock and Coteau Rapids above Lake St. Louis. The Seaway utilized a power canal built between 1929 and 1933, providing a water storage area for the power development at Beauharnois. In 1931, this canal was designated part of a future Seaway and was constructed for ultimate use as a navigation channel. Two locks lift ships into the power canal. This portion of the Seaway passes through the Province of Quebec.

Forty-four miles of open river through Quebec and Ontario intervene before entering the International Rapids section of the Seaway. From this point westerly the St. Lawrence River is the boundary between Canada and the United States. At Cornwall, the Long Sault Power Dam and associated control structures create a massive pool, flooding all upstream rapids. This lake is entered by the 11.25 mile Wiley-Dondero Canal within the boundaries of the United States, containing the two U.S. locks, the Snell and the Eisenhower. The power and navigation pool flooded vast tracts of both U.S. and Canadian lands. Eight Ontario communities were relocated and rebuilt elsewhere. Forty-one miles of the Canadian National Railways' main line and 35 miles of Highway 2 were relocated.

The last navigation structure of the Seaway project was a control dam and lock at Iroquois.

While construction in the St. Lawrence River proceeded, dredging of the Welland Canal was carried out to improve the channels to the official Seaway draught which at that time was 25.5 feet.

In 1959 the Department of Transport turned the ownership of the Welland Canal over to the St. Lawrence Seaway Authority and it has since been operated and maintained as an integral part of the St. Lawrence Seaway System.

Necessary Connections

In order to complete the historical perspective on the Great Lakes/Seaway system, mention must be made of two other key areas providing essential links between the Upper Lakes. These are the Detroit/St. Clair River area and the Sault Ste. Marie/St. Mary's River area, each with their own significant developments.

During the 19th century, as vessels of greater draught sought to use the System, considerable channel improvements and dredging had to be undertaken. One of the early improvements came in the St. Clair River, where a sand bar at its mouth limited depth to 6 feet. In 1866, the St. Clair Flats Canal Project was undertaken by the United States to straighten and dredge the mouth of the river. Since then dredging has been done as required to maintain the necessary draught. Channels have also been dredged through Lake St. Clair and the Detroit River.

Historically, cargoes moving north or south into the Lake Superior region had to be portaged around falls in the St. Mary's River, until the North West Company constructed and operated a small canal and lock in the 1790s and early 1800s to by-pass the falls. With increased settlement, stimulated by copper discoveries, a canal was constructed in 1855 along the United States shore. It proved to be inadequate, and it became necessary to construct a larger lock system in 1881 and again in 1896. As iron ore tonnage increased, the American locks were rebuilt and enlarged.

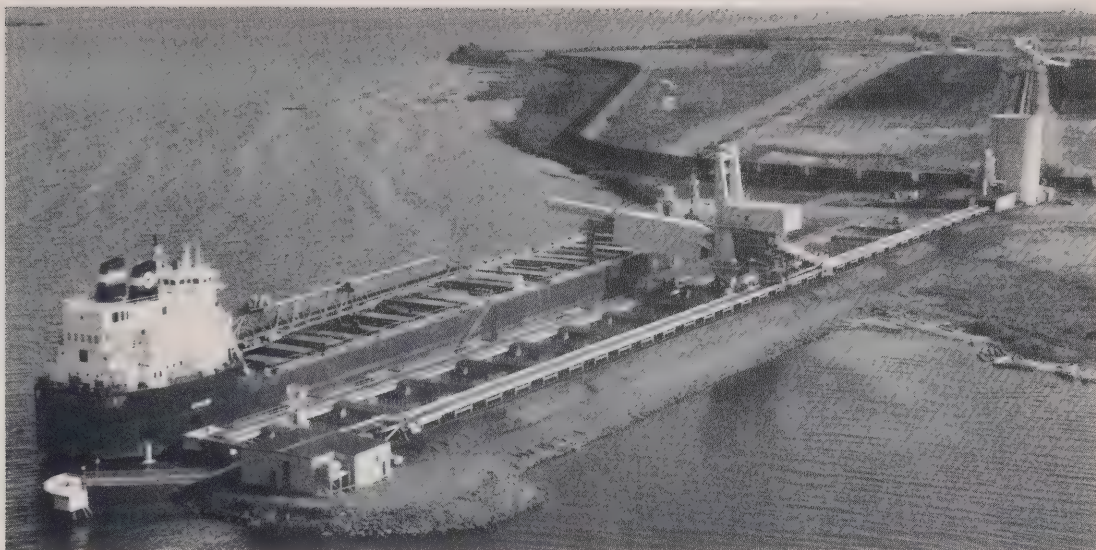
Today, there are four locks operating under the authority of the U.S. Army Corps of Engineers; the Davis, opened in 1914, the Sabin (1919), the MacArthur (1943), and the Poe (1969), the latter measuring 1189.5 feet by 109 feet and



Self-unloading laker, Algolake.



Foreign ship, the Welsh Minstrel.



capable of accommodating the new U.S. 1000 foot vessels which carry iron ore and western U.S. coal to United States steel mills and utilities.

The Canadian Government, thinking it politically prudent, and expecting a vast increase in grain trade from the West, surveyed for a new lock at the Sault in 1887. It opened seven years later with final dimensions of 899 feet by 60 feet by 19 feet. In 1959 the Canadian Sault Ste. Marie Canal was transferred from the Department of Transport to the St. Lawrence Seaway Authority. Never enlarged and facing a decline in commercial traffic, the lock was subsequently turned over to Parks Canada in April, 1979.

The St. Mary's River channel, below Sault Ste. Marie, contains many inhabited islands, as well as shoals and rapids. As far back as 1882 dredging was carried out. There are now two shipping channels through this U.S. area, one for upbound and one for downbound traffic.

History in the making

From the days of the fur trader to modern times, the history of the Great Lakes/Seaway System has been one of meeting the challenge of creating and maintaining all the links necessary for this vital inland water route. Step by step improvements have been implemented as greater demands were placed on the System. The culmination of all these improvements are illustrated on map #1 indicating today's Great Lakes/Seaway System.

Transportation Overview

There are many ways in which commodities moving in the Canadian transport system could be classified. One useful method is a system which places low-value, non-perishable commodities at one end of a spectrum, and high-value, time-sensitive commodities at the other.

Low-value, non-perishable commodities are usually bulk commodities. That is, they are transported in large quantities, without packaging: grain, iron ore, coal, gravel, sand and wood chips. These products are typically the first stage of extraction from the ground, the forest, or the field. They are moved by pouring, blowing, or over conveyor belts. As

the handling equipment is expensive, bulk commodities normally move in large volumes, reducing the unit cost of handling.

At the opposite end of the spectrum are manufactured commodities — such as digital watches, television sets, cameras and machine parts. Their high value means that substantial inventory costs are incurred while they are in transit, so a premium exists on the need to expedite their delivery. In recent years, large shipments of such commodities have tended to move via containers in the North American market. (Containers and their application are dealt with later.)

There are also a number of commodities which are neither bulk nor of high value. They have usually gone beyond the first stage of processing in their manufacture, but are not necessarily ready for final consumption. Examples of this include such things as pulp and paper, wood planks, packaged cement, industrial machinery components and a host of similar items. Fast delivery is not normally required for products in this group.

Where one ranks a particular commodity on the spectrum depends on the circumstances surrounding the movement. For example, if a ten dollar part is holding up the operation of a factory which produces a million dollars worth of goods per day, that part suddenly becomes a highly time-sensitive commodity. Its transport will be treated as though cost were of no consequence. If the same part was simply being moved to be held in inventory in a regional warehouse for later use, it would be treated as a more cost-sensitive movement. The routing would ensure that the cost of movement would be minimized. Time in transit would not be viewed as particularly important.

Liquid commodities have unique transport needs. Products range from edibles to energy supplies. Industrial products, such as sulphuric acid, are frequently moved in liquid form. Milk and refined petroleum are typical liquid commodities.

Gaseous products are another special section of the demand spectrum. They move, either as gases or, when compressed to high pressures, in liquid form.

The degree to which each one of these products is sensitive to time and cost depends upon the circumstances in which it is to be consumed.

	<i>Pipeline</i>	<i>Marine</i>
CAPITAL COSTS	Extremely high	Vessel costs are high. Right of way zero cost in open water, becomes expensive in shallow water or where levels change.
OPERATING COSTS	Extremely low	Low
EFFICIENT DISTANCES	Any distance.	Any distance.
MAXIMUM UNIT LOAD	Practically unlimited.	62,000 tons in upper Lakes 28,000 tons in lower Lakes 200,000 + tons on high seas.
BULK HANDLING	Excellent for fluids.	Excellent.
PACKAGE HANDLING	Non-existent.	A limited capability hampered by high overhead costs for non-containerized traffic.
FLEXIBILITY OF DEPLOYMENT	None.	Considerable vessel flexibility within Lakes. Right of way has rigid upper capacity bounds in locks.
ENERGY USAGE	Excellent. Multiple sources.	Excellent. Fuel oil, coal.
SERVICE STRENGTHS	Constant delivery to large markets.	Non-time sensitive, bulk goods.
SERVICE WEAKNESSES	Can only offer limited commodities, limited variations in flow.	Reduced competitiveness for small loads and inland origins and destinations.
LABOUR USAGE	Low.	Low.
INDEPENDENCE OF OTHER MODES	Can be totally independent.	Totally dependent unless production and consumption of load is at water's edge.
INDEPENDENCE OF SEASON	Totally.	Limited by ice. Winter shutdown in the Great Lakes.
BULK VOLUMES OF GRAIN	Not applicable.	One laker equivalent to three unit trains. 1362 trucks.

Modal Capability

With this background showing the different capabilities sought from the transport system, it is instructive to look at each mode in turn and see what abilities they have to respond to the range of needs of the nation's shippers.

The following table summarizes the strengths and weaknesses of each mode, and map #2 shows how each mode serves the various geographic parts of Canada.

Rate Regulation

In Canada, the rules for buying and selling transport services are largely governed by one piece of Federal Legislation and a number of provincial statutes.

Federal Jurisdiction

The National Transportation Act (NTA) developed as a result of a Royal Commission on Transportation of the early 1960s. The report of this Commission (the McPherson Report which dealt primarily with rail transport), suggested that Canadian shippers' interests would be best served by a free market environment for transport. This was a significant change from the highly regulated market for air, rail and water services which previously existed in this country. Some safeguards for recognized market imperfections, such as "captive shippers" were maintained, but the net effect of the legislation was to give substantial pricing freedoms to federally regulated goods carriers.

MODAL CAPABILITIES

<i>Rail</i>	<i>Truck</i>	<i>Air</i>
High equipment and right of way costs.	Right of way is publicly funded. Truck costs are relatively low. Terminals are expensive when required.	Terminal and enroute costs are public. Vehicle costs are high.
Maintenance of right of way is substantial. Equipment operating costs are low.	Operating costs higher than rail.	Highest of all modes.
For the most part, long haul is more efficient.	Short and medium hauls (up to 1000 miles).	500 miles and upwards.
10,000 tons for a large unit train.	Up to 90,000 lbs. (45 tons) depending on jurisdiction.	Up to 125 tons, depending on the aircraft.
Good.	Can only handle relatively small loads (see above).	Has to be containerized.
High overhead costs and lengthy handling procedures hamper competitiveness for non-containerized traffic.	Very flexible.	Most of the traffic both loose and in containers.
Considerable car and equipment flexibility. Minor right of way additions easily accomplished.	Trucks can be routed anywhere there are roads, and many have multi-purpose designs. Easily acquired and sold.	Aircraft can be routed virtually anywhere in the world. Designated landing areas have to be used.
Good. Diesel.	High users. Diesel, petroleum.	Highest users, aviation gas and kerosene.
Regular shipments to 10,000 tons with unit-style handling.	Door-to-door service. Part-load service.	Time sensitive, long distance moves.
Irregular, small movements, off-rail points.	Can only offer relatively small volumes, has high unit costs.	Limited dimensions, very high costs.
Medium to high.	High.	Labour intensive.
Can be independent but usually requires highway pick-up and delivery for smaller shipments.	Can be independent and frequently required for other modes.	Requires pick-up and delivery.
Independent, except in mountains where avalanches can stop service.	Almost independent. Severe snow and ice can interrupt service for a day or two.	Minor short-term shutdowns (hours) for snow, fog and ice.
One unit train equivalent to 454 trucks.	On the prairies, one truck can move up to 22 tons of grain.	Not applicable.

As a result these carriers are now free to negotiate the price of goods movements with shippers. Negotiations are conducted from whatever position of strength or weakness the parties might have.

The NTA has been regarded with considerable respect by many other countries, including the United States. In fact, the "Canadian deregulation" was frequently cited as one of the models for the recent round of regulatory reform which swept through the American transport sector during the presidency of Mr. Carter.

One reason for the enthusiasm which the NTA arouses in so many observers is the degree of flexibility it gives carriers and shippers. As a result, shippers are able to make

transportation arrangements which meet their needs, while the carriers, and the railroads in particular, have become far more efficient and profitable than ever before.

Provincial Jurisdiction

As a mode, trucks are not regulated by the NTA. They operate under the provincial trucking statutes, or the Federal Motor Vehicle Transport Act, which delegates inter-provincial and international moves to the provinces.

There are twelve Provincial or Territorial jurisdictions in Canada, and twelve differing regulatory philosophies for trucking services. While the difference in some cases is more of degree than of principle, the net effect is that Canadian shippers are faced with a range of market environments. At



one extreme, Alberta has effectively freed up market entry and operating conditions totally (for intra-provincial carriers). Quebec and Saskatchewan, at the other extreme, control market entry rigidly, set rates for the carriers and oversee a number of other operating conditions.

The Marketplace

For the shipper of goods, this means that the rules for buying carriage depend upon the location in which they function, and to where their goods are moving. Shippers fortunate enough to enjoy inter-modal competition can choose how the goods will move. They can seek competitive bids from the various modes.

If there is no intermodal competition, then the next favoured position is to have one carrier competing with another carrier of the same mode for the traffic. There are circumstances where this cannot happen, such as a shipper of bulk commodities who is only served by one railroad. In these instances, the shipper may be able to use the volume of his traffic to bargain with the carrier, citing costs charged for similar moves elsewhere as an argument for reducing rates. If the price of transport affects market penetration, this can also be used as a bargaining point.

Finally, there is the case of the small shipper who is captive to a large carrier, and whose traffic is inconsequential to that carrier. Such a shipper is unable to bargain with the carrier and will have to pay whatever is asked. The other side of this is, that some carriers are either compelled by regulatory agencies, or voluntarily choose to continue serving small communities where they can no longer make profit.

In spite of the apparent inequities for both sides which may be deduced from this description, the advantages outweigh the disadvantages, and shippers and carriers are satisfied with their lot. This conclusion has some exceptions, particularly in remote locations and other places where the conditions of normal markets are not met.

There are strict conditions placed on the physical characteristics of vehicles and loads by each Province. However from the perspective of economic regulation, the amount of international and interprovincial trade occurring to and from Canada negates many of the non-physical restrictions

imposed by government. Few jurisdictions are willing to exert much economic influence on moves that cross their boundaries. As a result, and particularly in light of the recent sweeping changes in the United States regulatory philosophy, much of the marketplace for transport in North America is moving toward being free enterprise.

Rate-Making Strategies for Carriers

A simplistic view of rate making would suggest that a carrier would charge a shipper the same price for any fixed volume of any commodity. This would be complicated slightly by recognition of the fact that costs for handling different commodities do vary; e.g. loading and unloading, and that these variations should be borne by the shipper.

In practise, this theory is destroyed by some complications in the laws of economics. In transport, some carrier costs, such as fuel are directly related to a specific movement. These are called variable costs. Others, such as the salary of the senior executives, have to be spread arbitrarily over all the traffic. These costs are called overhead. To attract traffic, carriers will offer low rates to low-value commodities. These rates must cover variable costs and make some contribution, however small, to the company overhead. In order to compensate for the small proportion of overhead contribution by low valued commodities, carriers charge considerably more for high value cargo. This ensures that their revenues at the year end do, in fact, cover all their costs and provide a profit.

As a result, where market penetration of the finished product is not effected by transportation costs, intermodal competition is the effective rate setter. Water and rail compete, rail and truck compete, and trucking has some impact on air cargo rates. In areas where intermodal competition and co-operation are both present, (e.g. rail and water in the Great Lakes region), each mode sets its price to try to maximize the distance it will haul the traffic before it turns the cargo over to the co-operating mode.



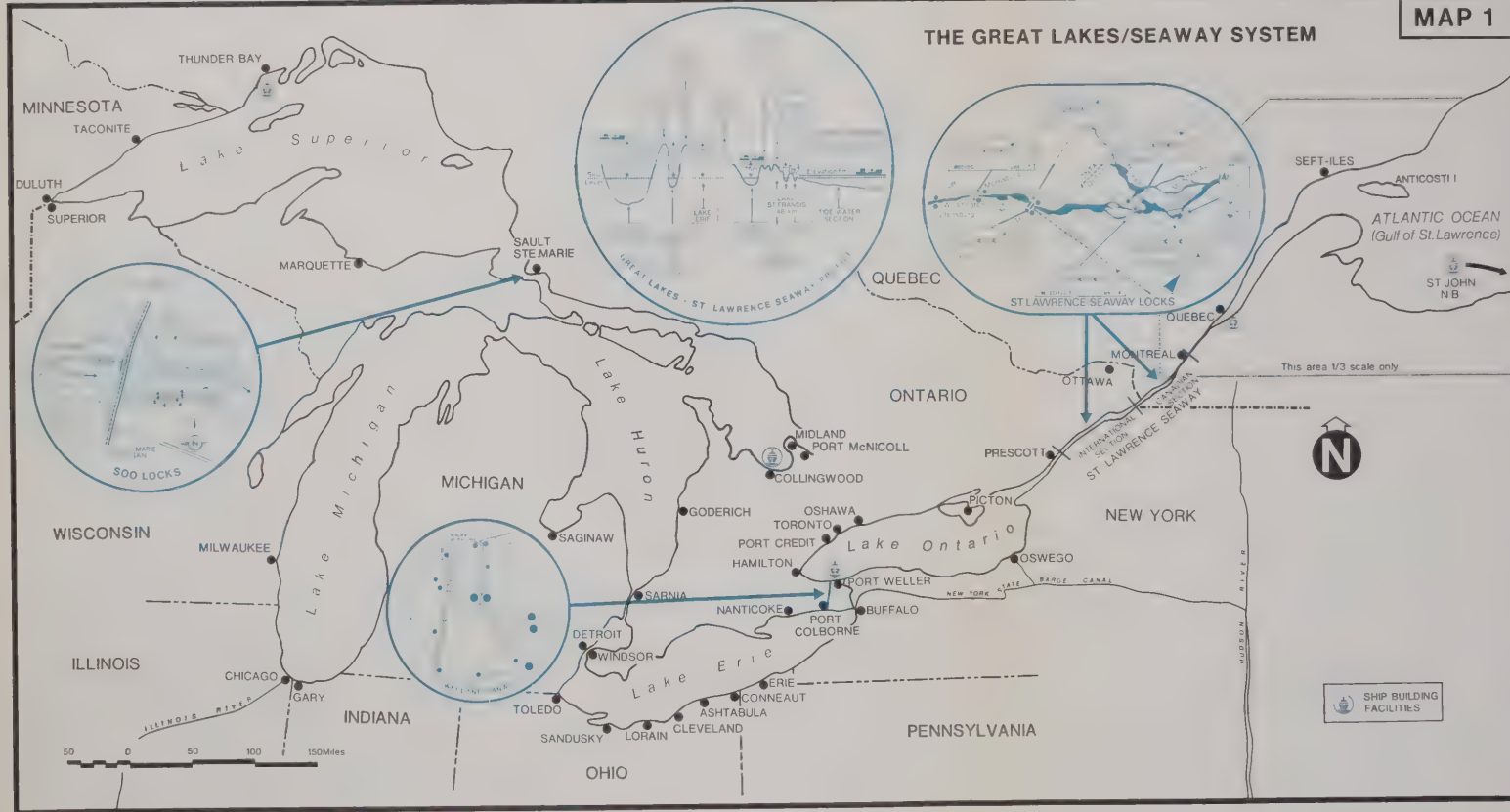
Grain is loaded on vessel.

Institutions

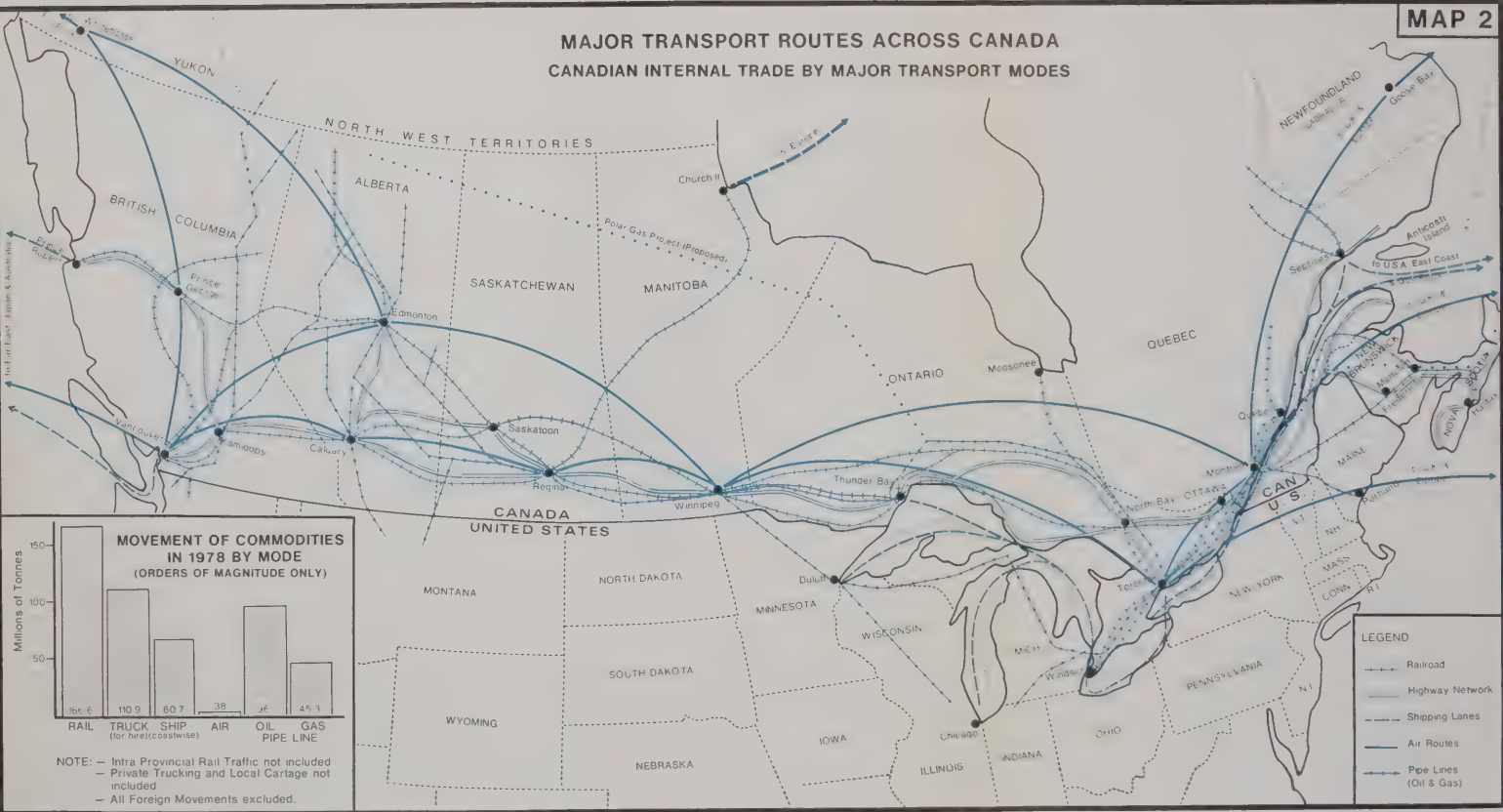
There are a number of institutions involved in the transport sector. Each mode has its own Association in which the carriers get together and develop a common front to deal with government changes to regulations, and with shippers.

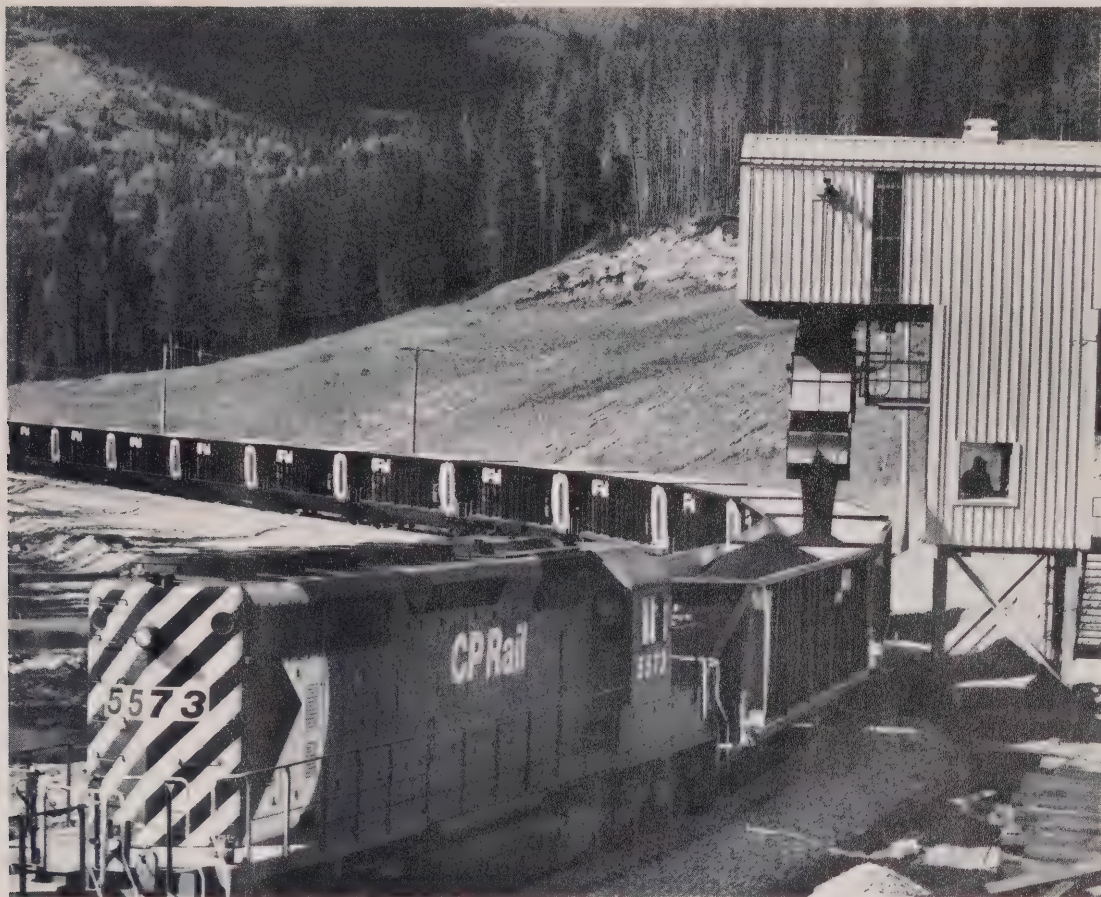
These interest groups include the Dominion Marine Association (made up primarily of the Lake Carriers), the Shipping Federation, Air Carriers' Association, the Trucking Associations and the Railways.

THE GREAT LAKES/SEAWAY SYSTEM



MAJOR TRANSPORT ROUTES ACROSS CANADA CANADIAN INTERNAL TRADE BY MAJOR TRANSPORT MODES





On the users' side, the Canadian Manufacturers' Association, the Canadian Industrial Traffic League and the Importers and Exporters Associations have large interests in transport developments.

All the institutions are active and vocal in their dealings with Federal and Provincial transport authorities.

The regulatory bodies are made up of the modal committees of the Canadian Transport Commission, i.e. the air, rail, water and pipeline committees. The individual Provincial transport boards regulate trucking.

Finally, there are a number of interest groups in the United States which are either congressionally authorized state compacts, such as the Great Lakes Commission, combination state and federal organizations such as the Great Lakes Basin Commission, or public and private groups such as the Great Lakes Task Force. These play important roles in influencing the development of the System for all types of uses.

Intermodalism

Intermodalism is the popular term for making the pieces of the transport sector work together as a single unit. The need to think intermodally has been brought about by physically expanding markets, by containers, and by technological developments which have allowed bulk commodities to be transhipped efficiently.

Containers are standard size boxes which can be placed on any mode of transport; (water, rail, or truck), and handled expeditiously to reduce the in-transit time. These and similar ones can be carried on specific aircraft

freighters. In appearance, containers resemble normal highway trailers with the wheels removed.

The standard unit is known as a twenty-foot equivalent unit or a TEU, and one highway truck can carry up to two TEU's. A typical rail train may carry 200 TEU's, whereas an



Cargo is loaded in hold of Air Canada jet.

ocean vessel might have up to 1500 TEU's. A 747 aircraft freighter is capable of carrying a number of intermodal containers, as well as special containers.



Iron ore being loaded on vessel.

There are some fascinating combinations of movements which are occurring today. For example, Air Canada has put together a package which allows containers to move across the Pacific Ocean by water to Vancouver. There, they are placed on aircraft and flown to the Toronto-Montreal markets. The combination of costs and service levels has met a particular demand in the market and both modes are profiting from this move.

As previously discussed, many containers bound for the inland markets find their way by water to the east and west coast ports, and move by rail inland. There is an increasing tendency for the railways to concentrate their activities on one or two major inland terminals and do the final distribution by truck. This means that it is possible for a container to move by three or four modes from its point of origin to its point of opening for final distribution.

Policy

A brief description of the policy environment in which commercial marine operations are undertaken on the Great Lakes/Seaway System and the deep seas is helpful to provide a context for further discussions. Who does what, and why, in terms of operating and paying for vessels, docks and harbours, canals and locks, dredging and icebreaking services, shipbuilding and repair services, and rescue services on the Great Lakes/Seaway System is outlined.

There are a number of United States and Canadian statutes which spell out these responsibilities. No attempt is made here to analyze each statute in depth. A complete

listing of the appropriate laws is found in Appendix II. Many of these laws have only peripheral impact on marine operations in the Great Lakes/Seaway System.

CANADA

Port Construction and Operation

In Ontario, ports and harbours have been built through a mixture of private and public funds. There are five Harbour Commissions, namely Thunder Bay, Windsor, Hamilton, Toronto and Oshawa. These commissions are intended to be self-financing. Their facilities have largely been built through the use of government backed loans. Very few direct grants have been given to these harbours. There are numerous Transport Canada wharves which have been built and are operated by Transport Canada, using public funds. These wharves are found in the smaller ports on the Lakes. Private capital has gone into the construction of wharves, elevators and terminals throughout the system. For example, the steel companies in Hamilton, Nanticoke and Sault Ste. Marie have constructed their own facilities.

On the east and west coasts, National Harbours Board ports have been constructed largely with public funds. Legislation has been pending for several years which would clarify their financial and managerial status.

Dredging and Icebreaking

Dredging and icebreaking required for private facilities, are paid for by the organization requiring them. If they are needed for general navigational purposes, they are publicly funded.

Seaway Construction and Operation

The construction of the St. Lawrence Seaway locks and canals, and the Welland locks and canals, was originally paid for with government tax revenues. The intention was that these costs would be recovered through user tolls. In practise, the escalating costs of the System allowed only the operating costs and some portion of the interest charges to be repaid. In 1973, the System went into a net operating deficit. As a result of this, tolls were raised (50% of the proposed increase in 1978, 25% in 1979 and 25% in 1980) with the intention of recovering the operating costs. This was done after considerable discussion between the users and the Federal Government and over the express objections of user and shipper organizations in the private sector who felt that such toll increases would act as a disincentive to Canadian trade, expressly to the upbound movement of iron ore from Labrador/Quebec. The outstanding debt was converted to equity on April 1, 1977. The outstanding interest charges have not been converted, although discussions on this matter have been held in Ottawa.

The Canadian portion of the Seaway is expected to pay its own way provided no significant expansion is required. The decisions on whether such an expansion is required, the timing of such expansion, and which agency has the responsibility for financing it have not been made.

Buoy Tendering, Marine Rescue

The Canadian Coast Guard shares the responsibility with the U.S. Coast Guard for maintaining the navigational aids in the Great Lakes/Seaway System. Rescue work is also shared by these agencies, with additional assistance from the Canadian Armed Forces and municipal police when necessary. The Federal Treasury pays for these activities.

Vessel Construction

Vessels built in Canada by the private sector are largely paid for by the private sector. The Federal Government has a declining subsidy programme which has varied over the years and in 1980 was reduced from twenty percent to nine percent of the total cost of the vessel. A further reduction to 8% took place on January 1, 1981. This subsidy programme and the import duties on non-Commonwealth built vessels, were designed to offset the additional costs incurred if the vessel owner chose to buy from a Canadian supplier rather than from a foreign supplier. These initiatives have ensured a basic Canadian shipbuilding capability. The Quebec, Nova Scotia and Newfoundland governments hold, or have held, interests in shipyards. To the extent that these have been loss operations, Provincial revenues have flowed indirectly into vessel construction.

Vessel Operation

Once built or imported, the vessel is operated by a Canadian entrepreneur entirely at his own risk and profit. On the Great Lakes there are no federal operating subsidies available for Canadian cargo vessels. The Canadian Government has a programme of subsidies for passenger services to and from the east and west coast islands, and for some cargo services to Newfoundland. The Ontario Government subsidizes some passenger ferry services between the mainland and the islands in the Great Lakes and the St. Lawrence. Cargo vessels receive no subsidy from the Province of Ontario.

UNITED STATES

Port Construction and Operation

Port facilities in the United States are all run by local authorities. While they are eligible for some Federal grants for specific projects, most American ports rely upon their home communities' taxing authority and their own ability to generate traffic, and hence revenue, to pay for construction, maintenance and operation. The port authorities have strong links with the local municipalities, and usually, though not always, weaker links with the states.

Dredging and Icebreaking

Dredging in the United States is paid for either by the U.S. Army Corps of Engineers, if it is within its jurisdiction, or by commercial operators if it is for a specific purpose.

Icebreaking in the United States is paid for by the U.S. Coast Guard and currently is provided free of charge to the beneficiary. This concept has been under review by the U.S. Coast Guard, although no definite action has taken place to alter the present course of action.

Canal Construction and Operation

Construction and operation of the American locks at Sault Ste. Marie, Michigan is the responsibility of the U.S. Army Corps of Engineers. Following the thus-far traditional U.S. policy of free inland waterways as established on the Mississippi and Ohio River Systems, the locks at the Soo are operated entirely at public expense. The St. Lawrence Seaway, of course, is an exception to this free water transit policy in the United States.

The United States St. Lawrence Seaway Development Corporation built and is responsible for maintenance and operation of the Eisenhower and Snell locks on the Montreal to Lake Ontario Section of the System. This agency has the

same cost-recovery objectives as its Canadian counterpart originally had. Both the operating cost and the capital costs are expected to be recovered from vessels passing through the System.

United States participants in marine affairs frequently point out the current differences in status between the Canadian and American policies on Seaway financing. There is considerable pressure on Congress to convert the United States debt to equity in the same manner as has been done in Canada. A series of 1970 revisions to the Merchant Marine Act of 1936 forgave the interest on the Seaway debt, allowing all future payments to be applied directly to principal.

Buoy Tendering and Marine Rescue

The United States Coast Guard has the responsibility for these functions and receives public funds for this purpose.

Vessel Construction

In the United States, vessels are built by the private sector. Subsidies are available from the government. The United States Department of Commerce has a construction differential subsidy programme to a maximum of 50% of the vessel cost which is designed to neutralize the cost advantage that foreign shipyards may have over American shipyards. Since 1970 this programme has been applicable to vessels built within the Great Lakes. The Federal Ship Financing Programme (Title XI) offers mortgage guarantees on the owners' portion of the vessel capital cost.

Vessel Operation

The United States Department of Commerce also has an operating differential subsidy programme designed to return to the shipowner the difference between the costs incurred in using American crewmen instead of a foreign crew. This includes both direct wages and fringe benefits, and such costs as American insurance versus foreign insurance. To date, the operating differential subsidy programme has not been applied to domestic operations on the Great Lakes. This is not through lack of willingness on the part of the Department of Commerce. They have not as yet received an application which meets their criteria.

PROVINCIAL JURISDICTION

In Canada, the statutory responsibility for maritime matters rests largely with the Federal Government. There are some relatively minor specific issues where the Government of Ontario is currently directly involved. The Ministry of Natural Resources administers the waterlot rights which are granted to prospective users of waterfront developments. For example, anyone wishing to develop a harbour on a new site within Ontario, has to apply to the Ministry of Natural Resources for a permit, specifying the uses to which the space above the river or lake bottom will be put.

Water quality programmes of the Province (Ontario Ministry of the Environment) include the control and monitoring of water quality, measures for control of waste discharges from onshore and offshore facilities within Provincial jurisdiction including loading/storage facilities, docks, harbours, dredging programmes and waste disposal from the municipalities, industries, marinas and pleasure craft. The Province shares with the Federal Government responsibility for control of oil and hazardous polluting

POLICY SUMMARY TABLE

RESPONSIBILITIES

	<i>Canada</i>	<i>United States</i>
<i>Port Construction</i>	Public and Private	Public and Private
<i>Port Operation</i>	Public, quasi-private and private	Public, private and quasi-private
<i>Icebreaking,</i>	Public	Public
<i>Channel Maintenance</i>	Public and Private	Public and Private
<i>Canal and Lock Construction</i>	Public. Debt now converted to equity	Public equity (USACE)* Public debt (SLSDC)**
<i>Canal and Lock Operation</i>	Public. Recoverable from private sector	Public (USACE)* Recoverable from private sector (SLSDC)**
<i>Vessel Construction</i>	Private, with some govt. (outside Ontario) shipyard ownership. Declining subsidy.	Private Subsidized
<i>Vessel Operation</i>	Private	Private Subsidies available

* *United States Army Corps of Engineers*

** *St. Lawrence Seaway Development Corporation*

substances including problems arising from marine and marine related activities.

The Ministry is also responsible for control and monitoring of air quality and noise levels, and planning for projects developed under the Environmental Assessment Act.

The Provincial Ministries of Intergovernmental Affairs and Housing are responsible for the funding and approval of municipal programmes which, amongst other things, contain waterfront development proposals.

REGULATORY RESTRICTIONS ON THE GREAT LAKES

Cargo Reservation

There are several important pieces of Canadian and United States legislation which control the way the trade occurs on the Great Lakes/Seaway System. In general, trade between Canadian ports can only be done in a vessel of Canadian or Commonwealth registry, unless no such vessel is available and a waiver has been obtained from the Department of Revenue to use a foreign registered vessel.

There is also a specific requirement that trade in the Great Lakes/Seaway System west of Anticosti Island, is reserved for Canadian built and registered vessels with provisions for exemption.

On the American side, the Jones Act prohibits movement of any cargo between United States ports unless it is in an American vessel. This means that the Canadian carriers cannot participate in any of the American Coastal trade. This prohibition is absolute.

In Canada, on the Great Lakes, there is only one regularly scheduled service for domestic break bulk general cargo. The domestic service is offered by Canada Steamship Lines running between Montreal and Thunder Bay. This is regulated by the Canadian Transport Commission Water Committee. The CTC has indicated that they are considering

dropping the requirements for the issuance of such a licence. Manchester Lines and Federal Commerce Navigation also run services which move foreign cargo out of Montreal for Great Lakes destinations.

In the United States, the Federal Maritime Commission is responsible for granting licences and regulating U.S. operators who wish to run regularly scheduled services for general cargo between American ports.

Safety Inspection

In both Canada and the United States, vessels have to meet the appropriate standards of the respective coast guards before they are allowed to operate within Canadian or American waters. These inspections are annual for certain mechanical items, and every five years for major structural items. There appears to be some redundancy in the inspection required by the Canadian Coast Guard, as items of mechanical fitness are duplicated in the compulsory inspections required by the international classification societies for insurance purposes.

Pilotage

The Pilotage Act in Canada requires vessels transiting designated regions in the St. Lawrence River, the St. Lawrence Seaway, the Lakes and the Welland Canal to have a fully qualified pilot on board, supplied by the Pilotage Authority. The designations are lengthy, but could be summarized as "everywhere except open waters". Canadian vessels have received year-to-year exemptions from the requirement for a pilot in the Great Lakes/Seaway System west of Montreal for the last eight years.

The original intent of the Pilotage Act was to safeguard the safety of shipping in Canadian waters. The requirement for pilots on the Great Lakes/Seaway System, however, continues to be questioned. Such a requirement is particularly suspect when well qualified experienced personnel are operating Canadian vessels.

2

The Products

Considerable interest has been shown in the developing volume of traffic moving through the different sections of the Great Lakes/Seaway System. In the pages that follow, past movements of the different commodities are examined, information concerning future movements is analyzed and a forecast is developed for each commodity or group of commodities for the year 1985. Upbound and down-bound tonnages through both the Montreal to Lake Ontario Section and the Welland Canal Section are shown separately. As the Upper Lakes Section is unlikely to be a limiting factor to traffic build up in the foreseeable future, specific tonnage forecasts were not developed for this Section of the Great Lakes/Seaway System.

The table below, prepared on the basis of figures published by the St. Lawrence Seaway Authority, shows 1979 and 1980 tonnages by commodity moving through the Montreal to Lake Ontario and Welland Canal sections.

THE ST. LAWRENCE SEAWAY CARGO TRAFFIC 1979 – 1980

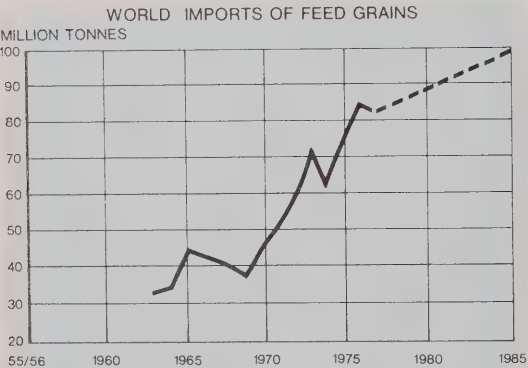
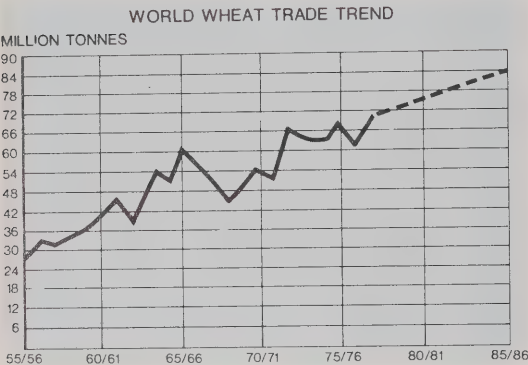
(Million Tonnes)

<i>Commodity</i>	<i>Montreal to Lake Ontario Section</i>		<i>Welland Canal Section</i>	
	<i>1979</i>	<i>1980</i>	<i>1979</i>	<i>1980</i>
Grain	24.7	26.7	26.2	28.1
Iron Ore	14.8	11.0	15.1	11.4
Coal	0.5	0.2	7.8	7.3
Other Bulk	11.6	9.1	13.9	11.2
General Cargo	3.7	2.5	3.3	1.6
TOTAL	55.3	49.5	66.3	59.6

Source: Economics Section, St. Lawrence Seaway Authority,
Jan. 1981.

Grain
World

World demand for all types of grain has grown substantially over the last several decades. As shown in the graph below the demand for wheat traded in international markets has more than doubled between 1955 and 1975 from 28,000,000 tonnes to 66,000,000 tonnes, while the demand for import feed grains has slightly more than doubled between 1963 and 1975 to 78,000,000 tonnes from 35,000,000 tonnes.



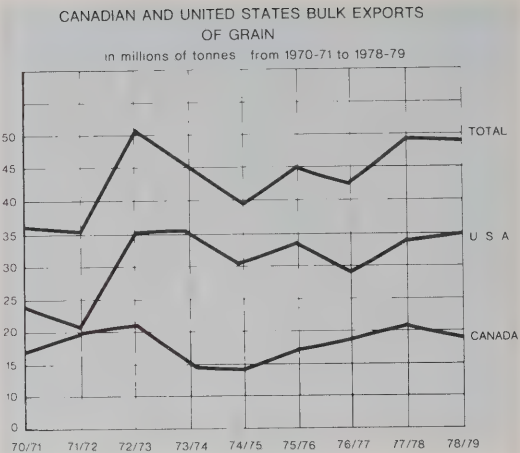
Source: T. Joseph Intl. Grain Trade Consultant

With continued growth in the world population, the inability of some nations e.g., Russia and China, to completely supply their own needs, and the availability of world financing, it is expected that the demand for grain will continue to increase during the forecast period of this study.

The five main producers of export grains in the world are the United States, Canada, Australia, France and Argentina. Until 1985, it is forecast that these countries will be able to sell as much grain as they are able to produce.

North America

The chart below shows the tonnage of grain exported from North America from the years 70/71 to 77/78. As will be seen, the tonnages from Canada have grown about 28% while those from the United States have grown substantially at 44% over the same period.



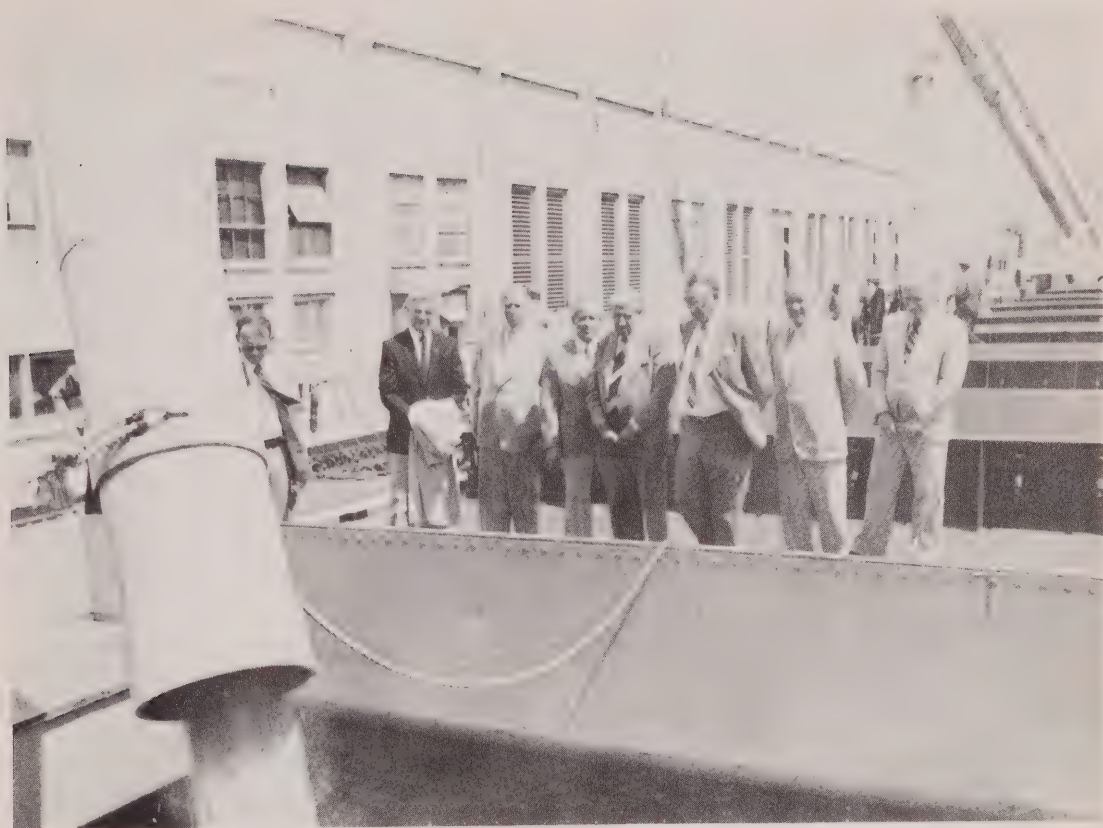
While a number of factors contribute to this difference in growth the primary one appears to be that production methods in the United States have improved somewhat more and sooner than in Canada. The data gathered indicate that production in, and export from, the United States will continue to grow during the forecast period.

Canada

In 1977-78 there were 48,203,000 acres of land in Western Canada devoted to grain crops which yielded about 37,900,000 tonnes of grain (wheat, oats, barley, rye, flaxseed and rapeseed). Canadian exports of grain amounted to 20,214,000 tonnes in the same year with over 95% of these exports originating in Western Canada. While grain production is an important factor in the Ontario economy relatively little Ontario grain is exported. Therefore the forecast deals primarily with grain from Western Canada.

Grain is exported from Canada through the following:

- (a) The West Coast ports of Vancouver and Prince Rupert handled 1979-80 crop year tonnages of 7,937,400 and 1,204,600 respectively. Constraints in the western export routes are: the need to rail the grain over the Rocky Mountains, rail rates, limited terminal capacity and unsettled labour conditions. Over the long run there is no doubt that tonnages exported through West Coast ports will increase as additional terminal capacity is planned at Prince Rupert and a number of Canada's newer customers are Pacific Rim countries. Shipping distances to these customers are shorter from the West Coast.
- (b) Churchill, Manitoba. Tonnages have not been large, (approximately 522,600 tonnes in the 1979-80 crop year), and will continue to be limited by the very short shipping season in Hudson Bay.
- (c) In 1979-80, 14,830,000 tonnes of grain moved through Thunder Bay, mostly for carriage by bulk carriers to the lower St. Lawrence River for transshipment to foreign vessels, or into foreign vessels for direct delivery to the foreign customer, as well as the domestic market.



- (d) About 1,200,000 tonnes of grain from Thunder Bay are offloaded at the Georgian Bay Ports. Approximately 500,000 tonnes of this grain are railed to Eastern Ports in the winter months under At and East Rates.*
 - (e) An all rail movement to Eastern ports. Grain is railed to Thunder Bay, unloaded, cleaned, reloaded, railed to Eastern ports and loaded in foreign vessels. All rail movement is normally used only in winter months when Great Lakes/Seaway navigation is closed. Rail transportation can be up to \$15.00 per tonne higher than all water movement or more than twice as expensive for that leg of the journey.
 - (f) Ontario grain is exported through Ontario transfer elevators located on the System. This grain is loaded on to bulk carriers and shipped to St. Lawrence ports where it is transhipped to foreign vessels for overseas destinations.
- Ontario grain is also loaded directly on to foreign vessels at these transfer elevators for direct shipment overseas possibly with a top-off at a St. Lawrence port. There is also some shipment of Ontario wheat by rail during the winter months from Georgian Bay Port elevators to east coast ports. The total volume of Ontario grain exports involving all forms of movement in 1980 was 820,000 tonnes of which approximately 343,000 tonnes were corn.

Although Canada has lagged behind the United States in

increasing grain production for export, the consensus of those providing information to the Task Force is that Canadian export production will increase by as much as 50% over the next five years. As this is a substantial increase, care was exercised to validate this forecast in as many quarters as possible. There is no doubt that the industry is planning an increase of this magnitude and appears convinced that such an increase can be attained.

It is forecast, therefore, that Canada could be exporting 30,000,000 tonnes of grain per year by 1985. Should this grain be exported in the same proportion between West Coast ports and Thunder Bay as indicated above, West Coast shipments would have to increase to 12,000,000 tonnes, and Thunder Bay shipments to 18,000,000 tonnes.

The Task Force notes that the West coast is now at capacity and that even if Prince Rupert is expanded, it is unlikely that West Coast capacity will be sufficient to handle the forecast tonnage.

It is the considered opinion of the Task Force that the grain tonnage exported through Thunder Bay and using all sections of the Great Lakes/Seaway System will reach at least 18,000,000 tonnes in 1985.

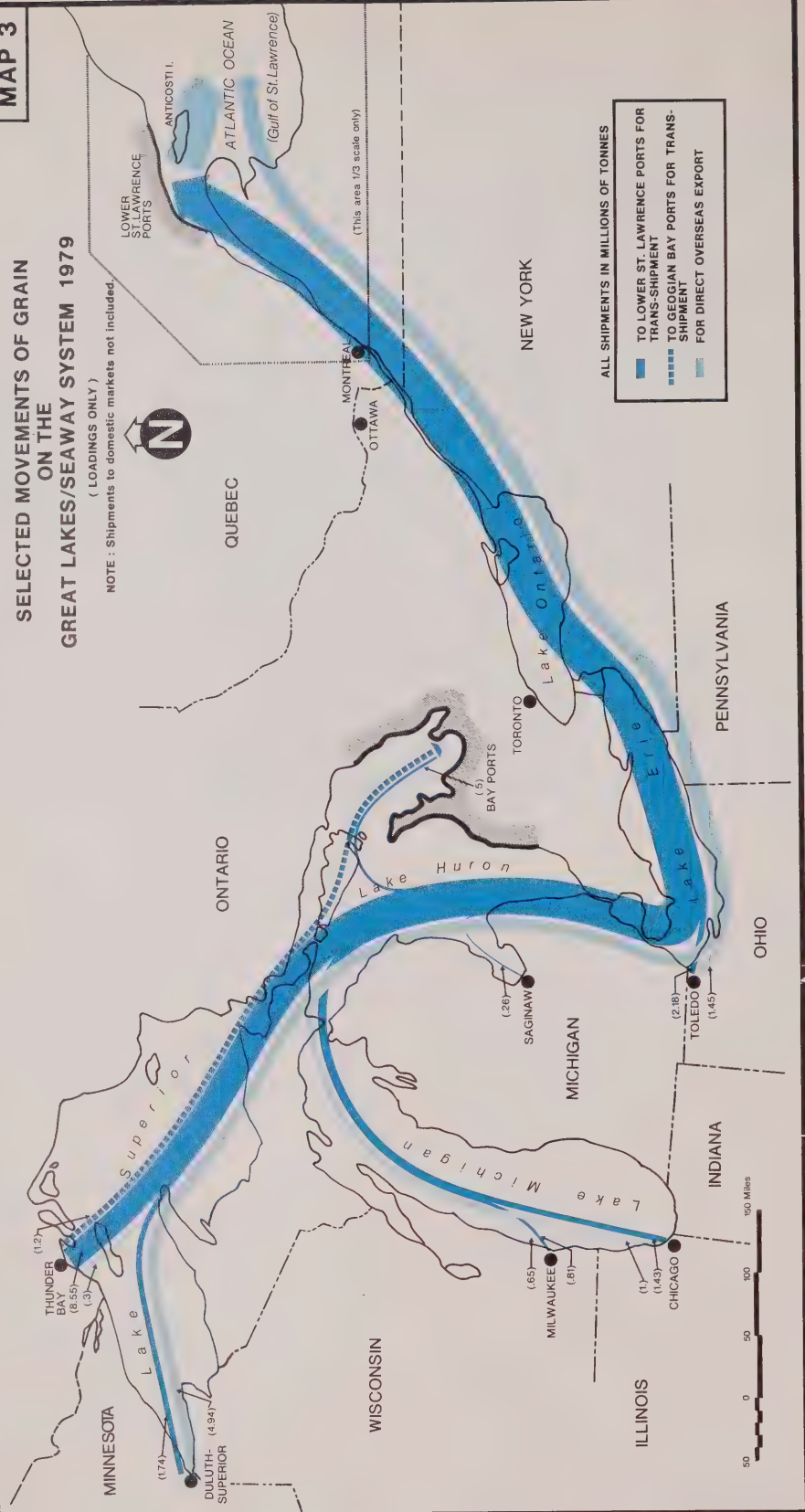
Traditionally two to three million tonnes of grain for domestic use have been shipped through Thunder Bay to several Ontario ports. Some will travel through the Welland Canal. It is therefore forecast that 18,000,000 to 20,000,000 tonnes of Canadian grain will move through the Welland Canal by 1985.

MAP 3

SELECTED MOVEMENTS OF GRAIN ON THE GREAT LAKES/SEAWAY SYSTEM 1979

(LOADINGS ONLY)

NOTE: Shipments to domestic markets not included.



It is important to add that this capacity requirement will place great pressure on the lower St. Lawrence River and the eastern elevators which will have to expand to handle these tonnages.

United States

As indicated earlier, grain exports from the United States have increased substantially over the last ten years and are anticipated to continue to increase through the forecast period. The United States shipped in the vicinity of 14,000,000 tonnes of export grain by domestic and foreign ships through the Great Lakes/Seaway System in 1980. Even though the last two years of United States Seaway utilization were plagued by a long strike at Duluth in 1979 and the Russian grain embargo in 1980, there was substantial growth in U. S. grain exports. The Seaway will continue to be required as an export route.

The major grain export route in the United States is down the Mississippi River by barge for transshipment to ocean vessels at Gulf Ports. This route has reached capacity due to the limitations at Lock and Dam 26. The expansion of Lock 26 is underway, but this is expected to take eight years to complete. It is estimated that increased export shipments of U.S. grain requiring Great Lakes/Seaway movement will reach between 22,000,000 and 25,000,000 tonnes by 1985.

Summary Grain Forecast

Canadian grain shipments through the System are forecast to reach 18,000,000 to 20,000,000 tonnes by 1985, an increase of some 3,400,000 to 5,400,000 tonnes over 1980. United States grain shipments are expected to reach a level of between 22,000,000 and 25,000,000 tonnes by 1985. The forecast indicates a total downbound tonnage of grain by 1985 moving through all Sections of the Great Lakes/Seaway System of 40,000,000 to 45,000,000.

Coal

The recently released "World Coal Study", carried out with full Canadian participation, indicates that global imports of coal as an alternate energy source will increase to over 150,000,000 tonnes by 1985 and that two of the main sources of coal will be the United States and Canada. Canadian coal for export, which is almost entirely western i.e., Alberta and British Columbia, will continue to move through West Coast ports because of transportation costs and destinations.

The United States presently exports coal primarily from eastern states i.e., Pennsylvania, West Virginia, etc. through ports on the Eastern Seaboard. Demand for U.S. coal has already increased to such an extent that present shipping facilities are fully utilized and additional facilities are actively being planned on the Eastern Seaboard.

Canadian usage of coal and shipments within the Great Lakes/Seaway System are discussed under the headings Metallurgical Coal and Thermal Coal.

Metallurgical Coal

Metallurgical Coal is used in the steel industry and 73% of that industry in Canada is within the Province of Ontario. The three major steel makers (Algoma, Dofasco and Stelco), received approximately 7,200,000 tonnes of metallurgical coal in 1979 with 6,730,000 tonnes coming from the United States and 470,000 tonnes coming from mines in Canada.

The coal from the United States moves by rail to Lake Erie ports where it is transhipped to lake vessels for movement to Hamilton, Nanticoke or Sault Ste. Marie. It is estimated that 4,600,000 tonnes pass through the Welland Canal while 2,120,000 tonnes are shipped to Sault Ste. Marie. A growing tonnage will move directly across the Lake to Nanticoke. The 470,000 tonnes originating in Canada come from Nova Scotia and traverse the Montreal to Lake Ontario section of the System destined to Hamilton.

The Canadian steel industry is expected to continue to expand but at the very modest rate of approximately 2.5% per year. On this basis the forecast for metallurgical coal transiting the System in 1985 would be 540,000 tonnes moving upbound through the Montreal to Lake Ontario Section; 5,300,000 tonnes downbound through the Welland Canal; and 2,500,000 going to Canadian Ports in the Upper Lakes Section or to Nanticoke.

Thermal Coal

Thermal coal for thermal generating stations on the Canadian side of the Great Lakes/Seaway System is used almost exclusively by Ontario Hydro. The coal comes from two sources (a) United States eastern mines shipped by rail to Lake Erie ports, then by lake vessels to generating stations primarily on the shores of Lake Ontario thus transiting the Welland Canal and, (b) Western Canadian coal shipped by rail to Thunder Bay, then by lake vessels to Nanticoke on Lake Erie transiting only the Upper Lakes Section of the System.

Ontario Hydro have indicated that their plans call for increased nuclear generation and no significant increases in coal generation in the future.

Ontario Hydro's submission to the Task Force forecasts total shipments to thermal generating stations below the Welland Canal of 4,700,000 tonnes in 1985.

The total thermal coal forecast for 1985 is as follows: U.S. coal moving downbound through the Welland Canal will amount to 4,700,000 tonnes, and Western Canadian coal downbound through the Upper Lakes will remain at the present rate of 2,500,000 tonnes.

United States Overseas Exports of Coal

As indicated earlier, world consumption of coal is forecast to increase substantially. Demand for coal from the Eastern United States has already increased to the point where United States Eastern Seaboard shipping facilities are inadequate to handle the current volumes and long loading delays are standard. As many as 100 ships were waiting to load coal at Newport News in October 1980. As mentioned previously, additional shipping facilities are actively being planned.

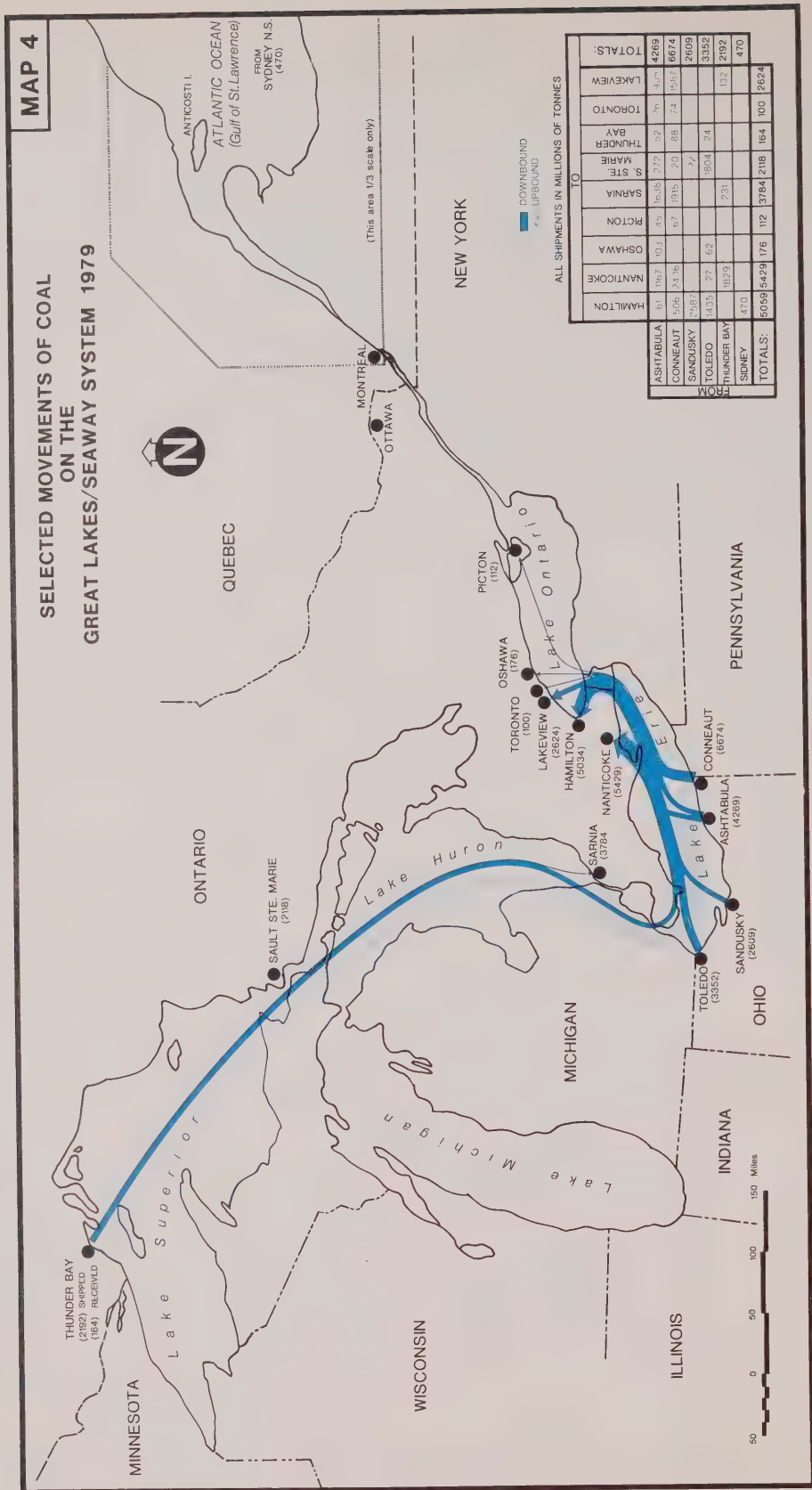
However, for coal from Pennsylvania and adjacent states, a much shorter rail haul exists to Lake Erie ports where transshipment could be made either to foreign vessels or to lake vessels for further transshipment in the lower St. Lawrence River. The Task Force has been told that this trade could increase to as much as 10,000,000 tonnes of thermal coal downbound through both the Welland Canal and Montreal to Lake Ontario Sections of the System within the forecast period by 1985. *However as this trade is still developing the tonnages have not been included in the overall forecast for 1985.*

It should be stated that the United States looks to a greatly increased movement of coal on the Great Lakes at least for the next decade. Several U.S. operators have built, or are currently building, new carriers for this expanding coal trade.

* *The At and East Rates are Canadian Government subsidized rail rates moving from Central Canada to eastern Canadian ports.*

MAP 4

SELECTED MOVEMENTS OF COAL ON THE GREAT LAKES/SEAWAY SYSTEM 1979





Summary Coal Forecast to 1985

	Montreal to Lake Ontario	Welland Canal
Metallurgical Coal	540,000 tonnes upbound	5,300,000 tonnes downbound
Thermal Coal		4,700,000 tonnes downbound
Total Coal transiting Welland Canal downbound		10,000,000 tonnes

Iron Ore

At present, the main sources of iron ore for both the Canadian and United States steel industry are Minnesota, Upper Michigan and Labrador/Quebec. Canadian industry also uses northwestern Ontario sources.

Iron ore shipments to Algoma Steel at Sault Ste. Marie which come by rail from the company's own mines at Wawa do not involve the water mode. At present these movements amount to about 1,500,000 tonnes annually. The balance of their iron ore requirements of about 3,500,000 tonnes originate in Upper Michigan and vessel movement is only a short haul across eastern Lake Superior.

Nanticoke only received 53,000 tonnes from the Quebec/Labrador mines in 1979. The balance of approximately half a million tonnes came from Taconite on

the U.S. side of Lake Superior.

Shipments of Minnesota ore for U.S. steel mills transit only the Upper Lakes Section of the System and have not been included in the forecast.

The best information we have been able to obtain would indicate that the steel demand on both sides of the border will grow at a modest rate of about 2.5% per annum. The forecast for movement to the United States from Quebec/Labrador assumes almost no growth at a level significantly lower than the average of the last 5 years (13,263,000 tonnes).

Summary Iron Ore Forecast

The forecast of iron ore movements through both sections of the Seaway for the year 1985 is shown in the following table along with the 1979 movements:

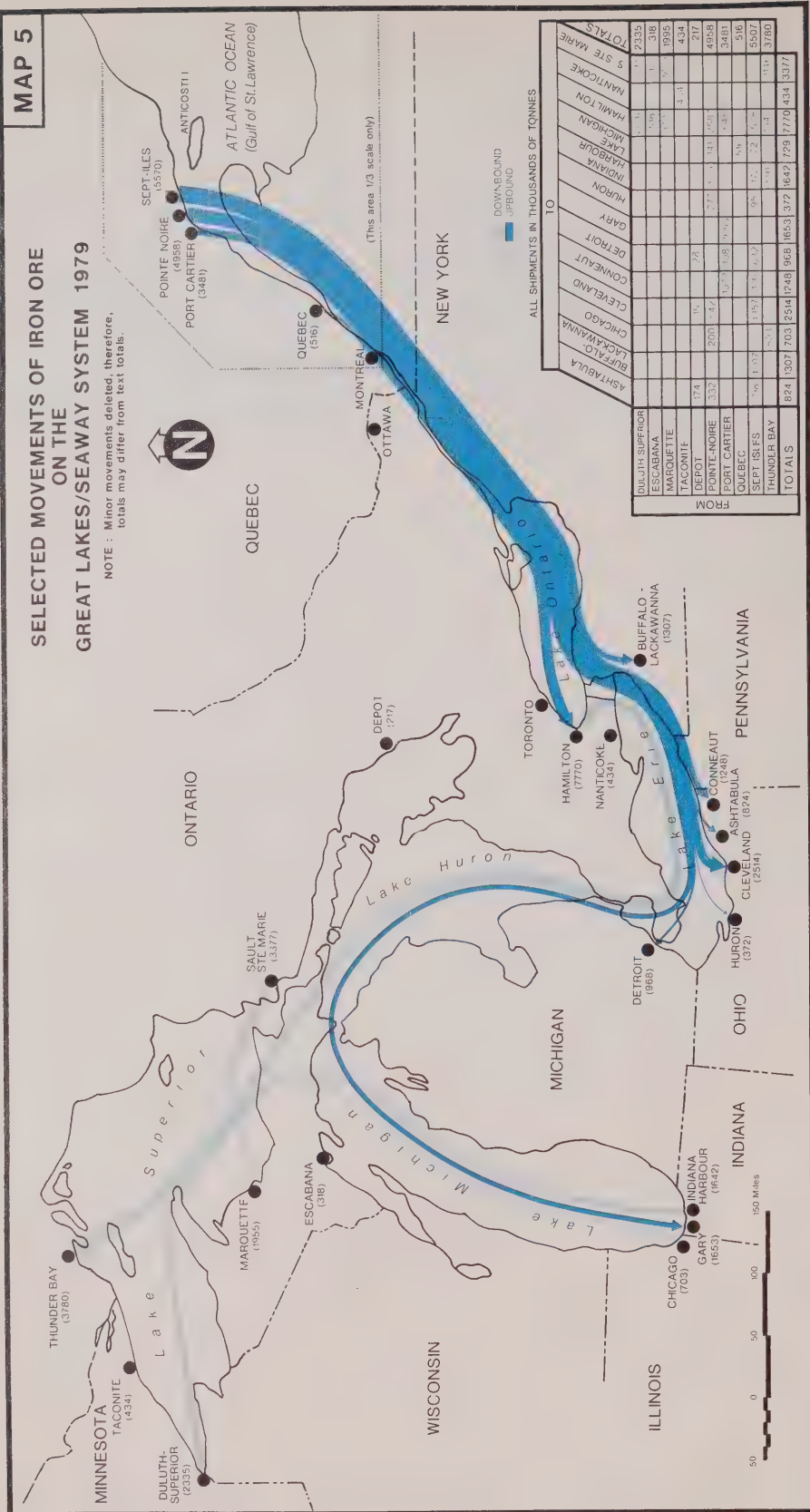
Movements of Iron Ore in the two Sections of The St. Lawrence Seaway
1979 and Forecast of 1985

	Montreal to Lake Ontario		Welland Canal	
	1979	1985	1979	1985
Downbound				
United States to Hamilton	—	—	2,500,000	2,875,000
Downbound				
Thunder Bay to Hamilton	—	—	1,500,000	1,725,000
Upbound				
Labrador/Quebec to Hamilton	3,900,000	4,500,000	—	—
Upbound				
Labrador/Quebec to United States	11,000,000	12,000,000	11,000,000	12,000,000

MAP 5

SELECTED MOVEMENTS OF IRON ORE ON THE GREAT LAKES/SEAWAY SYSTEM 1979

NOTE: Minor movements deleted, therefore, totals may differ from text totals.





Other Commodities

A number of other bulk commodities such as coke, petroleum products, stone, gravel, sand, salt and other mine products as well as general cargo are carried on the Great Lakes/Seaway System. The individual tonnages of these products are not great but the total tonnage can be significant.

COKE

A number of steel mills in the United States have imported coke from overseas to supplement their local production when their operation required coke in excess of their own supplies. The import by Canadian steel mills is not significant nor is the amount expected to rise. The tonnage upbound through both the Montreal to Lake Ontario and the Welland Canal Section of the Great Lakes/Seaway System has varied from 1.5 to 2.5 million tonnes in the last three years. It is not expected that this trade will grow. A figure around 1,500,000 tonnes for foreign coke with United States destinations is likely in the years of the forecast period.

PETROLEUM PRODUCTS

Petroleum products move on a fleet of approximately 30 Canadian tankers. Between 1 and 3 million tonnes move annually through one or the other sections of the Seaway. It is believed that tanker distribution of petroleum products will continue in the future, with predominant moves

originating in Sarnia, Nanticoke, Toronto and Montreal. Movements of petroleum products vary both in volume and distance travelled from year to year, and no accurate projection of tonnage can be made for 1985. Over ninety percent of the movement is between Canadian ports and entails deliveries of petroleum products to smaller markets or industrial consumers from refineries or product pipeline terminals.

While no increase is forecast, it is estimated that petroleum products will continue to move by tanker in similar volumes in the future. This would amount to approximately 400,000 tonnes upbound and 1,500,000 tonnes downbound through the Welland Canal.

SULPHUR

Sulphur is a new trade on the System. Shipments of sulphur through Thunder Bay, which were negligible three years ago, have risen to over 160,000 tonnes in 1980. Sulphur comes mainly from Alberta where it is derived as a by-product of oil and gas production. Overseas demand for sulphur is continuing to rise. When the tar sands plants are fully operational it is expected that the production of sulphur will amount to as much as 10,000,000 tonnes annually. This commodity shows great potential for growth in System traffic in the future. Because of the many uncertainties involved, particularly timing, no increase has been forecast for the purpose of this report. The forecast is for 200,000 tonnes downbound through all sections of the System in 1985.

Forecast Summary of Major Commodity Movements on the Montreal-Lake Ontario and Welland Canal Sections of the Great Lakes/Seaway System by Origin

(in millions of metric tonnes)

Montreal to Lake Ontario Section — Upbound Movement								
	Canada		United States		Foreign		Total	
	1979	1985	1979	1985	1979	1985	1979	1985
Grain	—	—	—	—	—	—	—	—
Iron Ore	14.9	16.5	—	—	—	—	14.9	16.5
Coal	.5	.5	—	—	—	—	.5	.5
All Other	2.2	2.8	.3	.3	6.6	7.4	9.1	10.5
TOTAL	17.6	19.8	.3	.3	6.6	7.4	24.5	27.5
Montreal to Lake Ontario Section — Downbound Movement								
	Canada		United States				Total	
	1979	1985	1979	1985			1979	1985
Grain	10.7	18.0-20.0	14.2	22.0-25.0			24.9	40.0-45.0
Iron Ore	—	—	—	—			—	—
Coal	—	—	—	—			—	—
All Other	3.2	3.7	2.9	3.4			6.1	7.1
TOTAL	13.9	21.7-23.7	17.1	25.4-28.4			31.0	47.1-52.1
Welland Canal Section — Upbound Movement								
	Canada		United States		Foreign		Total	
	1979	1985	1979	1985	1979	1985	1979	1985
Grain	—	—	—	—	—	—	—	—
Iron Ore	11.0	12.0	—	—	—	—	11.0	12.0
Coal	—	—	—	—	—	—	—	—
All Other	3.7	4.6	.1	.1	5.5	6.3	9.3	11.0
TOTAL	14.7	16.6	.1	.1	5.5	6.3	20.3	23.0
Welland Canal Section — Downbound Movement								
	Canada		United States				Total	
	1979	1985	1979	1985			1979	1985
Grain	11.3	18.0-20.0	14.9	22.0-25.0			26.2	40.0-45.0
Iron Ore	1.6	1.7	2.6	3.0			4.2	4.7
Coal	.1	.1	7.6	10.0			7.7	10.1
All Other	3.8	2.4	4.1	4.3			7.9	8.7
TOTAL	16.8	22.2-24.2	29.2	39.3-42.3			46.0	61.5-66.5

POTASH

Potash is also a relatively new trade on the Great Lakes/Seaway System. A moderately sized but growing amount of potash produced in Saskatchewan is presently moving on the System principally into the Southwestern Ontario farm belt. The tonnages involved are highly variable. Three years ago Thunder Bay shipped 40,000 tonnes of potash. In 1980 over 700,000 tonnes moved through Thunder Bay. A minor portion of this is being sold to some of the United States neighbouring the Great Lakes and is moving by water transport. The magnitude of the future movement of potash being shipped on the Great Lakes/Seaway System is not expected to increase by 1985. A potash tonnage of about 700,000 tonnes by 1985 is forecast. Approximately 90% of this tonnage will be for Ontario markets above the Welland and hence will not transit the Welland Canal.

STRUCTURAL MATERIALS

Aggregates such as sand, gravel, stone, as well as other building materials depend heavily on construction activity for total volumes, however, lakewise movements are dictated by the relative locations of sources and destinations. Much cement and clinker is moved by the producers with locations in the System (Clarkson, Bath, Picton, and Bowmanville) to United States ports or Ontario urban centres. Total cement, clinker, stone and other aggregates moved, average around 3,000,000 tonnes a year. Especially with sand and stone, origins and destinations change over time but water movement is essential to the transport of these

low value added commodities and has been steadily growing over the last 10 years. Changes in cents on the transport rate will result in switches of sources, and even modes of shipment. While the tonnage influence on System capacity may not be very important, the movement itself is dependent on System costs and conditions. Growth in the trade is forecast to be 2 to 2.5% per year. It is estimated that structural materials will transit portions of the System in volumes ranging between 3,400,000 and 3,600,000 tonnes by 1985. The heaviest single tonnages of stone and cement move upbound on the Welland Canal so it is not expected that they will add to the downbound capacity problems.

The Ministry of Natural Resources in a recent study have identified potential for development of aggregate sources in the Manitoulin Island area for the central Ontario and U.S.A. markets. These developments would generate large tonnages some of which might be moved by water downbound through the Welland Canal. These movements are not included in our tonnage forecasts.

The downbound movement of these materials through the Welland Canal is not expected to exceed 1,300,000 tonnes by 1985.

SALT

Salt moving on the Great Lakes/Seaway System is mined mostly in the Goderich and Windsor area and shipped to several Ontario, Quebec and United States destinations. Statistics show 1,600,000 tonnes moved downbound on the Welland Canal and 800,000 tonnes moved downbound

through the Montreal to Lake Ontario Section in 1979. Salt is used for road salting and in industrial processes. The water mode is normally the most advantageous, cost-efficient means of transport. The forecast to 1985 anticipates that a major new Domtar salt mining facility in Goderich will be in full operation by 1983. Present production is 2,200,000 tonnes a year. New production will add 1,500,000 tonnes. The vast majority of this new tonnage is to be sold to the United States and will move to United States destinations on the System without using the Welland Canal. Therefore total salt tonnage moved on the Lakes Section will reach 3,700,000 tonnes by 1985 but the Welland Canal downbound movement will only slightly increase from the 1979 tonnage to 1,800,000 tonnes.

GENERAL CARGO

General cargo includes a wide variety of packaged items such as chemicals, machinery, steel, farm equipment, consumer products, etc. On the opening of the St. Lawrence Seaway in 1959 a considerable volume of general cargo came into the Great Lakes by water transport, but the volume and importance of these movements have declined greatly since that time, especially those goods moved in overseas trade.

General cargo now represents approximately four percent of the total volume of goods moved throughout the System. The revenue generated from the general cargo movements is however significant to those ports which handle it. It is to be noted that the general cargo trade is still active within and across the lakes and that there are scheduled services transporting packaged freight in significant amounts.

General cargo vessel.

Although a number of events contributed to the decline of general cargo movements, the primary one was the advent of containerization. The container business has been built on the basis of rapid, scheduled movement using large, fast, specially built vessels. Best use of these vessels and maximum maintenance of schedules can be achieved by movement to major terminals by ship and on to the destination by rail or truck. Major terminals have developed in Halifax, Quebec and Montreal, and the movement of these vessels is mainly confined to these areas.












One shipping line developed a collection and distribution system between Montreal and U.S. Great Lakes ports where a foreign registered vessel could be employed. Because of costs and competing rail rates, it is unlikely that such a service will develop between Montreal and Canadian Great Lakes ports. Overall, containerization has resulted in a dramatic decline of Great Lakes/Seaway System general cargo carried by ship.

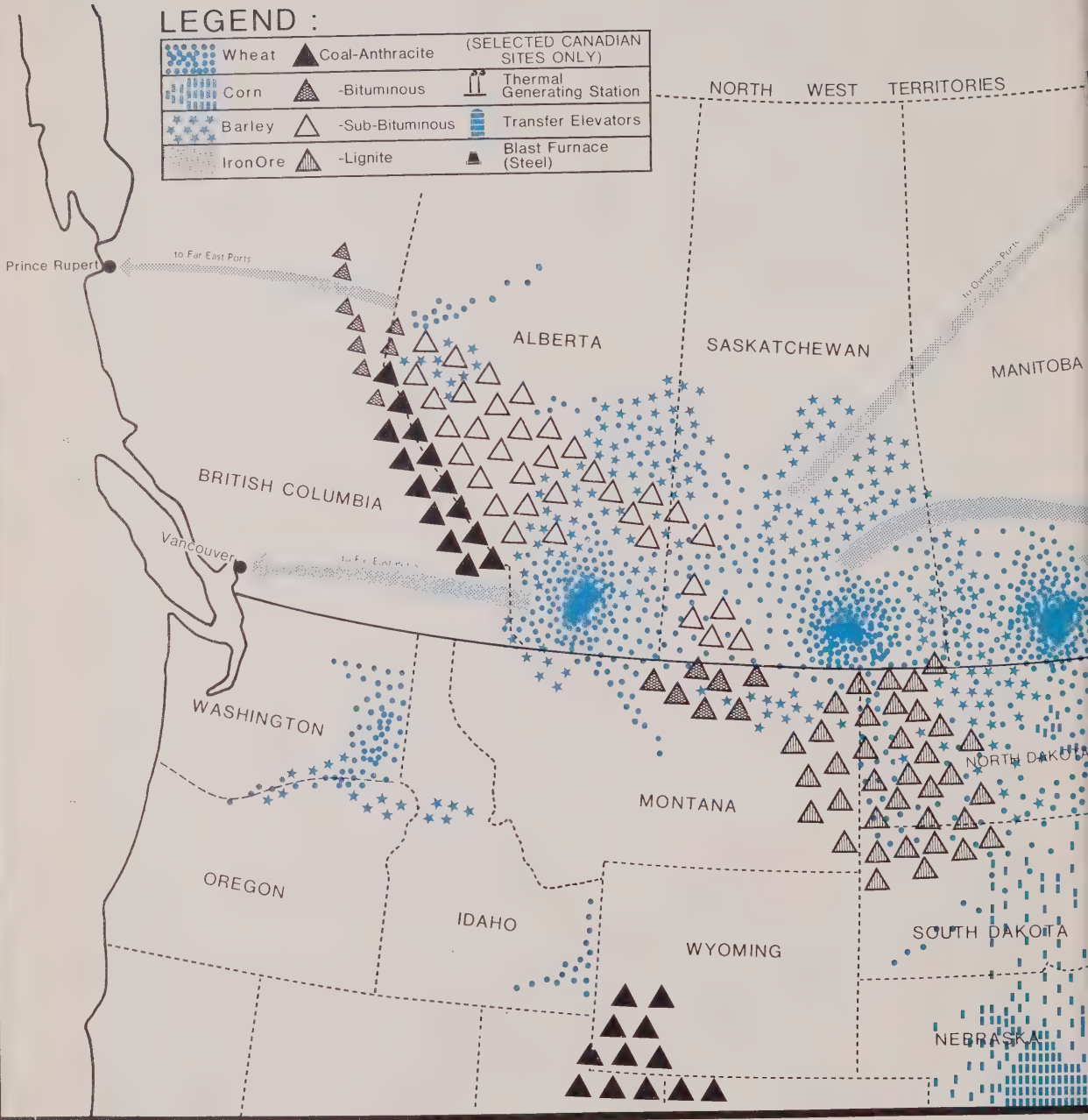
There are positive signs that domestic general cargo traffic will increase in the future. Increasing energy prices are making the cost of water transport more competitive. Technological innovations such as Roll-on Roll-off and container vessels are also likely to increase the amount of traffic carried by water. Movements under study would not transit the canal system and have therefore not been included in the report.

As there would not appear to be any factor that would substantially increase general cargo within the forecast period, it is estimated that approximately 2,500,000 tonnes will pass through the Welland Canal upbound and 300,000 tonnes downbound in 1985. The Montreal to Lake Ontario Section is estimated to carry 3,000,000 tonnes upbound and 300,000 tonnes downbound in 1985.



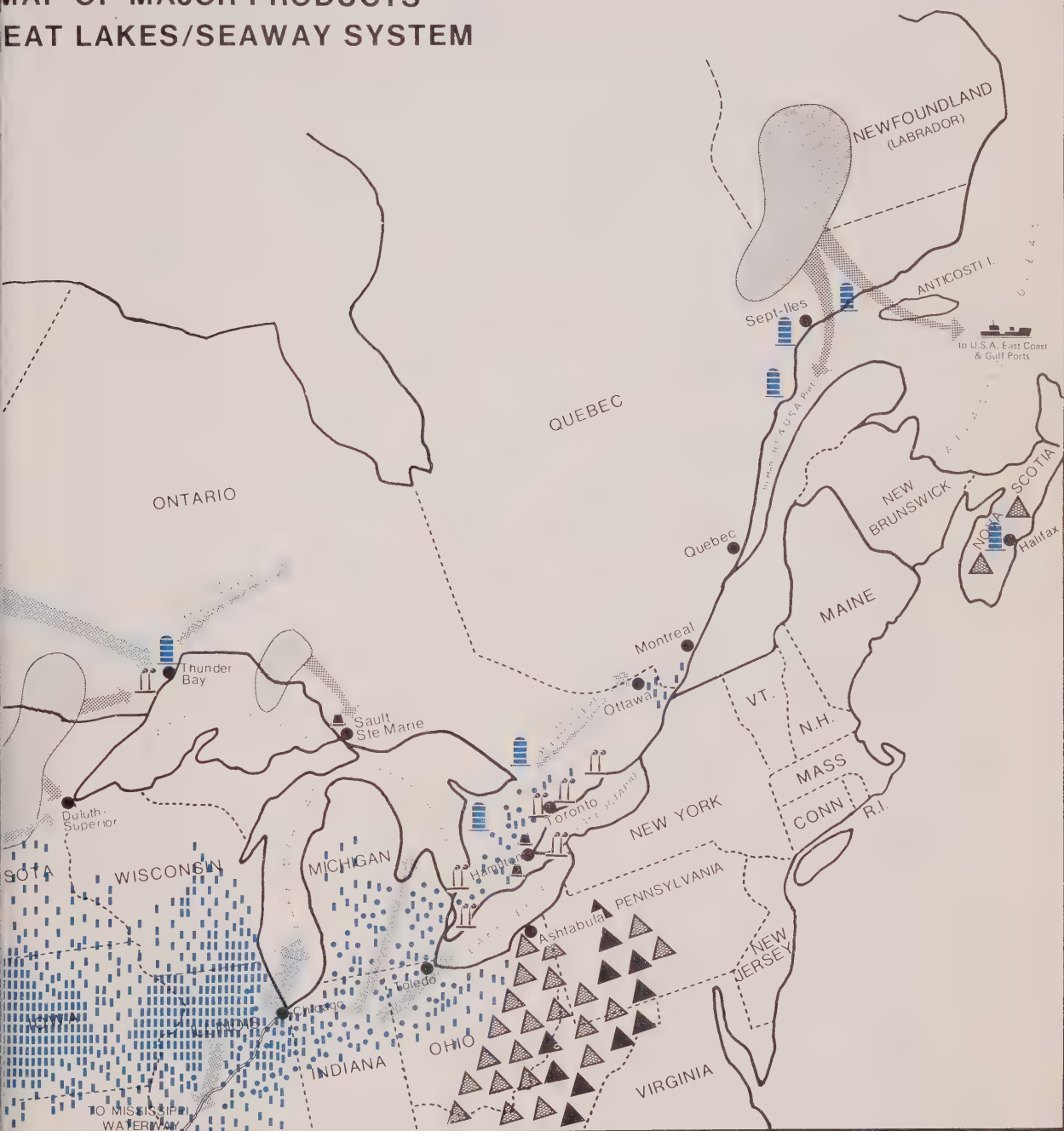
LEGEND :

	Wheat		Coal-Anthracite	(SELECTED CANADIAN SITES ONLY)
	Corn		-Bituminous	 Thermal Generating Station
	Barley		-Sub-Bituminous	 Transfer Elevators
	Iron Ore		-Lignite	 Blast Furnace (Steel)

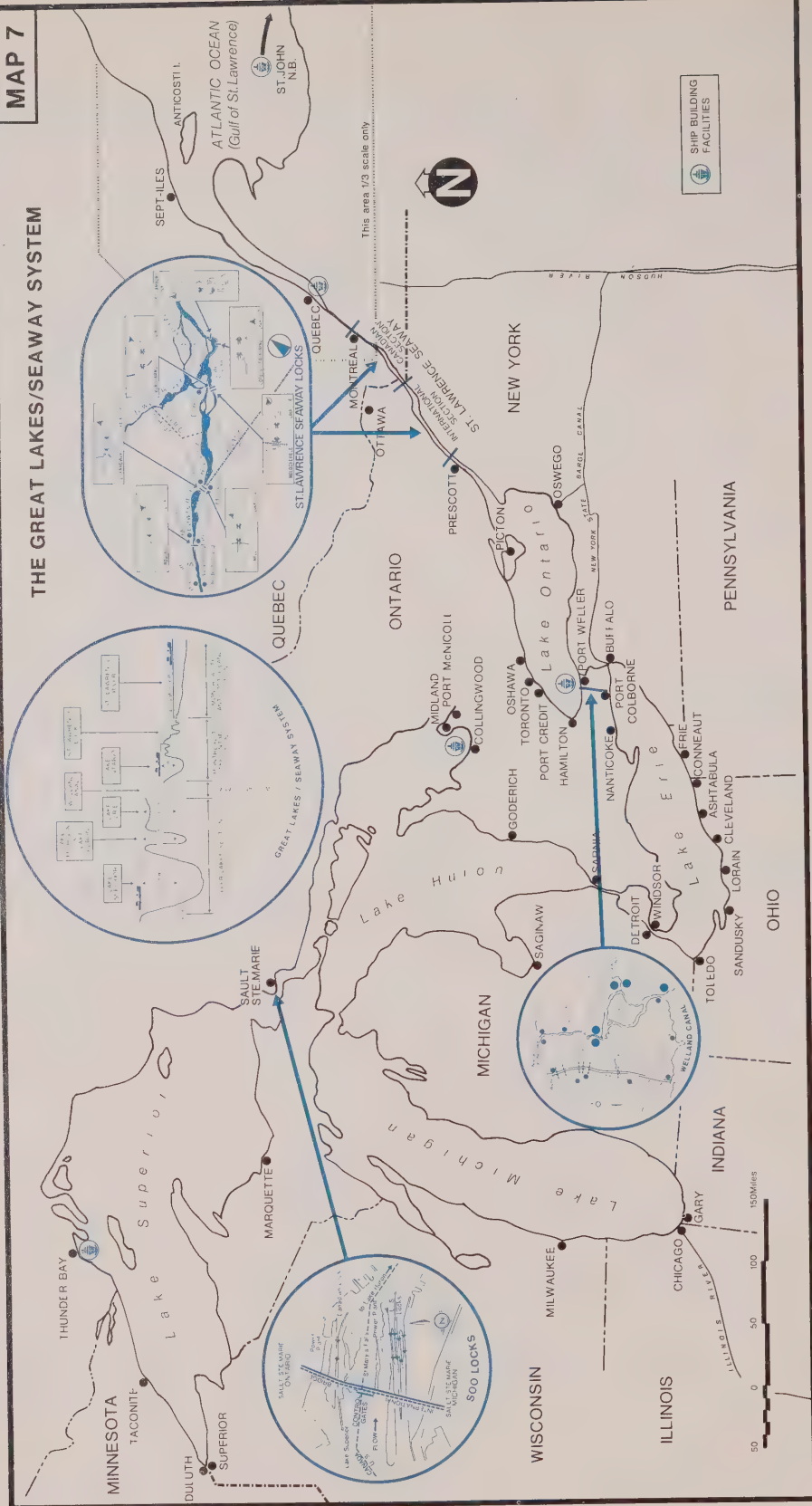


MAP 6

MAP OF MAJOR PRODUCTS GREAT LAKES/SEAWAY SYSTEM



THE GREAT LAKES/SEAWAY SYSTEM



3

The System

Elements in the System

Waterways

The Great Lakes/Seaway System extending from Anticosti Island to the western shores of Lake Superior can be divided geographically into four sections:

1. Anticosti Island to Montreal
2. The Montreal to Lake Ontario Section
3. The Welland Canal Section
4. The Upper Lakes Section

Specific examination has only been carried out on the last three Sections.

Anticosti Island to Montreal

The Section between Anticosti Island and Montreal is open for year round navigation and has the capability of allowing the transit of vessels with a draught of thirty-five feet. Grain from the Great Lakes/Seaway System is transhipped in the lower St. Lawrence River Ports to ocean vessels and iron ore is loaded for transit to Great Lakes steel mills.

Montreal to Lake Ontario Section

This Section passes through Canada and the United States. Five of the locks are owned and operated by the St. Lawrence Seaway Authority, a Canadian Crown Corporation. The remaining two are owned and operated by the St. Lawrence Seaway Development Corporation, an agency of the United States Government. Lock tolls are charged. Vessels are limited to a length of 730 feet, a width of 76 feet

and a 26 foot draught. They are lifted approximately 220 feet between Montreal and Lake Ontario. A major hydro development of Quebec Hydro exists near the Beauharnois Lock while Ontario Hydro and the New York Power Authority have major facilities near Cornwall.

Welland Canal Section

The Welland Canal, 27 miles in length, allows movement between Lake Ontario and Lake Erie. There are 8 locks, 3 of which are twinned, that lift vessels approximately 325 feet into Lake Erie. The Welland Canal is owned and operated by the St. Lawrence Seaway Authority. Lock tolls are charged.

Upper Lakes Section

Channels between Lakes Erie, Huron and Michigan contain no locks. The connection between Lake Erie and Lake Huron through the Detroit River, Lake St. Clair and St. Clair River has channels allowing a 26 foot draught. Access for vessels into Lake Superior is through the St. Mary's River and at Sault Ste. Marie there are four U.S.A. and one Canadian lock all in parallel. The Canadian lock is limited to shallow draught and narrow vessels. Two of the United States locks allow less than 26 feet draught. The newer U.S.A. Poe Lock can accommodate vessels of 1000 foot length and 105 feet wide allowing passage of 1000 foot vessels throughout the Upper Lakes Section. Lock depth is 32 feet, however allowable channel draught is limited to 26 feet. The United States locks are operated by the U.S. Corps of Engineers while the Canadian lock is operated by Parks Canada. No tolls are charged.

Port of Hamilton.



Port of Thunder Bay.



Port of Toronto.



Port of Windsor.

Ports

There are approximately 60 ports or harbours in Ontario and these can be divided into three types.

1. Commission Ports—There are five Harbour Commission Ports in Ontario, established under federal legislation. Windsor, Oshawa and Thunder Bay were reorganized under the 1964 Harbour Commission Act. Hamilton and Toronto retained their original legislation. Board memberships vary as follows:

- Windsor — Members—2 Federal, 1 City, Reorganized 1964
- Oshawa — Members—2 Federal, 1 City, Reorganized 1964
- Thunder Bay—Members—3 Federal, 2 City, Reorganized 1964
- Hamilton — Members—2 Federal, 1 City, Established 1912
- Toronto — Members—2^o Federal, 3 City, Established 1911

^o1 on recommendation of the Toronto Board of Trade



Port of Oshawa.

2. **Public Harbours**—Prior to 1963 there was considerable controversy as to the ownership of the bottom of harbours. The Ontario Harbours Agreement Act of 1963 between the Federal and Provincial Governments defined the Federal ownership and set out the harbour limits. There are 22 Public Harbours in Ontario. They are administered by the Federal Government which appoints Harbour Masters or Wharfingers who look after day to day maintenance, maintain records, allocate berths etc. and collect wharfage and berthage fees. Prescott and Port Colborne have elevators within their harbours that are operated by the National Harbours Board.

In addition to Public Harbours, other public facilities such as wharves and breakwaters etc. have been built with Federal funding throughout the System. They are administered by the Federal Government.

3. **Private Facilities**—Private wharves and docks etc. can exist within Harbour Commission Ports, Public Harbours and non-designated port areas. Anyone can build a private facility but must have ownership of the bottom or an arrangement with the owner before building. Any private facility must meet the requirements of the Federal Navigable Water Protection Act which would also apply to any related installation in navigable waters. The Act ensures that navigable waters will not be improperly impeded.

Ferry terminals in Ontario are now owned by the Provincial Government but the related dock facilities are built and owned by the Federal Government.

There are approximately twice the number of harbours on the Great Lakes/Seaway System in the U.S.A. as there are on the Canadian side. They are run by local authorities and some have taxing powers. Eight states about the system and each takes an active role in Great Lakes marine activities. The Federal Government of the United States provides substantial assistance to these harbours through the U.S. Corps of Engineers and the U.S. Coast Guard.

Provincial Ports Policy

In Ontario there are a variety of port and harbour facilities that directly influence the development of their surrounding areas. Within these facilities some are experiencing increases in cargo, others however are declining.

Reasons for the increases include the greater volumes of commodities such as salt, stone, aggregate, grain, and petroleum products. Incoming cargoes such as potash also help to contribute. The reasons for decline in some ports importance include the general trend toward larger vessels which cannot access small ports, efficiencies in other transportation modes and a general decline in some commodities. In addition, changes to road and rail access have occurred. In some instances this has meant that land transport has become more cost effective.

In some areas of the province, a need for port or harbour facilities capable of handling smaller volumes of commodities remains.

The significance of these ports as they relate to the local and Provincial economy, and the constantly changing role they play as part of the Great Lakes/Seaway System requires examination.

The Province of Ontario can play an important part in developing an overall policy or plan within which all these ports would fall.

Commission Representation

As indicated previously, Harbour Commissions were

created over time through Acts of Parliament as a result of local initiative. Representation on the Commissions still reflect conditions as they were when the Acts were passed. Cities have since substantially increased in size, in some cases Regional Governments are now in place and Provincial policies have changed. Present representation comes only from the City and the Federal Government and the number of representatives vary between the five Commissions.

The cities are directly affected by any port changes and their active participation is necessary to ensure that local concerns and policies are taken into account. However, the influence of the Port is now much larger than when the Ports were established.

There are now Regional Governments in place in three of the Commission Port locations. The Provincial perspective must be considered to ensure broader issues that affect overall Provincial strategy and economic policy are included in Commission plans. Neither Regional nor Provincial interests are currently represented on any of the Commissions. To ensure effective operation of the Commissions, Regional and Provincial interests should be present.

Port and Harbour Operations and Planning

Ports policy in Canada has evolved over the years. In 1936, Sir Alexander Gibbs recommended that Canada's ports were too important to the country's trading patterns to be left to operate without some form of central planning and financing. As a result of this, a number of East and West Coast and Quebec ports were brought under the control of the National Harbours Board (NHB). The 1964 Harbour Commission Act standardized the administrative structure of many of the remaining ports not included in the NHB umbrella. This Act provided for uniform, largely autonomous commissions to run ports. Some ports, such as Hamilton and Toronto, operated under their own legislation, which predated all the above events. Finally there are a number of wharves and harbours which are administered directly by Transport Canada.

The Task Force views the commercial orientation of the Ontario Commission Ports as being highly desirable. The degree of autonomy currently possessed by the Commissions should be protected.

Land use planning deserves special mention. Relations between municipalities and their ports have ranged from harmonious to acrimonious in Ontario. Where there is friction, the crux of the issue centres around who controls the use of land for commercial water-related, commercial non-water related, and non-commercial purposes. The Harbour commissions have to make money to survive, and they all want to get along with the adjacent municipalities. The municipalities want to develop attractive waterfronts for their residents, and they also need industry to support their finances. These tensions are not always resolved. There have been instances in which an apparent lack of understanding by a number of the involved parties has escalated the differences to an unnecessary degree.

The Federal Government is considering setting up Regional Ports Councils. Ontario would be one of the regions, however representation on these proposed Advisory Councils has not been determined.

An overall Ontario Ports policy is required. In addition, a mechanism such as an Ontario Ports Council is required to co-ordinate Port Planning in Ontario and influence the Federal Government regarding overall port planning.



It is recommended that:

The Ontario Government formulate a Provincial Ports Policy.

The Ontario Government indicate to the Federal Government, the need for Regional and Provincial representation on all Harbour Commissions.

The Ontario Government reaffirm to the Federal Government that Port Policy must emphasize both a commercial orientation and decentralized administration.

The Ontario Government proceed with legislation to create and fund a Provincial Ports Council as a co-ordinating group for commission and non-commission port planning.

The Fleet

There are three fleets on the Great Lakes/Seaway System; Canadian, U.S. and Overseas. The Canadian fleet in general operates throughout the Great Lakes/Seaway System carrying most bulk commodities between Canadian ports and between United States and Canadian Ports. The American fleet operates mainly in bulk movement between United States Upper Lakes ports. The Overseas fleet carries both general and bulk cargo between foreign and Great Lakes ports.

A substantial portion of the Canadian and United States vessels are captive to the Great Lakes or Seaway System because of size or strength characteristics. These vessels provide an extremely economical, low energy consuming bulk handling transportation system. The fleet mix varies from small vessels built at the turn of the century to new 730 foot and 1000 foot vessels built with the most up to date bulk handling technology.

Fleet Ownership

The fleet can be divided into three ownership categories: a) Common Carriers, b) Industry, and c) Foreign.

a) Common Carriers

There are a number of shipping companies that carry cargo by contract and their vessels are versatile enough to carry different commodities. A Canadian shipping company will contract to carry grain downbound from Thunder Bay to the St. Lawrence River ports and iron ore upbound from the Gulf of St. Lawrence to steel mills at Hamilton. The backhaul greatly increases the efficiency of the system and reduces the transportation costs. It is necessary to clean the cargo holds before changing from one type of cargo to another. The majority of Canadian Great Lakes cargo vessels are owned by such Common Carriers.

b) Industry

A number of companies, primarily in the steel, petroleum and cement industries operate marine transportation branches that provide a fleet of bulk carriers for their own needs.

They carry their own raw materials and in some cases distribute the manufactured products. Generally these vessels are designed for a single purpose or commodity.

c) Foreign

Foreign vessels operate on the Great Lakes using shipping agents in many cities to look after the marketing aspects of the trade. The economics of shipping make it highly desirable for vessels to have revenue-producing cargo both in and out of the Lakes. Grain is the main export commodity. General cargo such as steel and bulk products such as raw sugar are imported.

Since ocean vessels are normally designed with a greater proportion of width and depth to length than are lake vessels, only the smaller ones can be accommodated in the Great Lakes/Seaway System. Because of depth limitations, many ocean vessels must travel the System partially loaded. Extra cargo is added at the deeper St. Lawrence river ports after leaving the Great Lakes/Seaway System.

Recently new vessels have been designed, primarily for Great Lakes trade, that can also be used for transporting cargo on ocean routes.

It can be seen in the following table that the Canadian fleet is much newer than the United States fleet.

Age of Great Lakes Fleet (as of 1979)		
	Canadian	United States
Less than 10 years	37	26
10 to 20 years	69	12
20 to 30 years	31	28
30 to 50 years	5	40
Over 50 years	19	67

The next two tables provide a break down of vessels in Great Lakes service by type of vessel, carrying capability, and nationality and illustrate the owners of commodities, vessel ownership, vessel types, and methods of loading and unloading.

FLEET CLASSIFICATION

The Great Lakes fleet can also be divided into three classifications of vessel types based on their design to carry, load, and unload particular commodities; Dry Bulk, Liquid and General Cargo.

Dry Bulk

It is normal to subdivide this classification into bulk vessels and self unloaders. Bulk vessels carry dry, solid materials that do not require packaging and are loaded and unloaded by shore based equipment. Grain is usually carried by bulk vessels.

Self unloaders carry dry, bulk solids that can be adapted to handling by conveyor. These vessels carry the unloading equipment on board. The unloading boom can stack the commodity ashore or can transfer the commodity through a hopper to a shore based conveyor system. The high unloading rate and versatility of unloading in any location has created a demand for more of this type of vessel even though there are additional construction costs and permanent weight added which reduces the cargo carrying capacity of the vessel. All thousand foot vessels in the United States are self-unloaders.

Liquid Cargo

Liquid cargoes are carried in tankers. The relatively small volumes of petroleum products and other chemicals moved on the System tend to make the use of small tankers more efficient.

General Cargo

General cargo, because of its different sizes, weights, packaging, and fragility, must be handled by individual pieces. To reduce this handling, standardized containers have been developed so that each container can be packed at the origin and delivered to the destination. Some general cargo such as steel remains uncontainerized. Much of the general cargo carried by the Great Lakes/Seaway System serves as the inbound haul for a return trip of grain.

RO-RO which is a roll on, roll off technology has been under consideration for service across Lake Ontario. It consists of special vessels with ramps that can be lowered to a wharf permitting truck trailers to roll on or roll off with containerized goods or large bulky cargo. It appears that such a service may be started in the near future.

Vessels in Great Lakes Service
Cargo Carrying Capability in Tonnes as Limited by Seaway Draught

TONNES	Over 29,000	29,000 to 20,000	20,000 to 10,000	10,000 to 5,000	Under 5,000	Over 29,000	29,000 to 20,000	20,000 to 10,000	10,000 to 5,000	Under 5,000
	CANADIAN					U.S.				
LAKE BULK FREIGHT VESSELS	0	47	28	11	3	3	18	66	5	9
LAKE SELF UNLOADERS	0	20	6	2	0	12	9	23	1	4
LAKE TANKERS	0	0	3	23	4	0	0	0	6	9
LAKE PACKAGE FREIGHT VESSELS	0	0	0	7	0	0	0	0	0	19
OCEAN VESSELS	0	0	0	0	3	0	0	0	6	0
TOTALS	0	67	37	43	10	15	27	89	18	41

Source: Greenwood's Guide to Great Lakes Shipping 1979

*Great Lakes Fleet Data
Under Normal Conditions*

COMMODITY		CARGO OWNER	VESSEL OWNER	TYPE OF VESSEL	LOADING	UNLOADING
GRAIN	CAN	Wheat Board	Canadian Carriers	Bulk Lakers High Cubic Capacity	Elevator Spout	Marine Leg
	USA	Grain Companies	Foreign	Ocean Bulk General Cargo Small Capacity		
IRON ORE	CAN	Steel Companies	Canadian Carriers	730' Bulk & Self Unloaders High Cubic Capacity for other Products	Rail Trestle with Hopper & Chute	Trend Self Unloaders Old Hulett
	USA		Steel Companies	New 1000' Self Unloaders Old 600' Bulk		
COAL	CAN	Steel, Coal, and Power Companies	Canadian Carriers	730' Self Unloaders High Cubic Capacity	Conveyor	Self Unloaders
	USA		Coal and Steel Companies	New 1000' Self Unloaders Old 600' Self Unloaders		
STONE	CAN	Quarries	Canadian Carriers	Small, Old Self Unloaders for Shallow Docks	Conveyor	Self Unloaders
	USA	Steel and Cement Companies	Steel Companies			
CEMENT	CAN	Cement Companies	Cement Companies	Special Bulk Self Unloaders Small	Blowing by Pipeline	
	USA					
PETROLEUM PRODUCTS	CAN	Oil Companies	Oil Companies	Small Tankers for Shallow Docks	Pipeline	
	USA					
LIQUID CHEMICALS	CAN	Chemical Companies	Carriers	Special Equipment Tankers	Pipeline	
	USA					
GENERAL CARGO	CAN	Diverse	Canadian	General Cargo Container Ship RO-RO	Ship's Gear Shore Cranes RO-RO	
	USA		Foreign	Side Loader	Fork Lift	



Shipbuilding and Repair

The shipbuilding industry in Canada and in Ontario is closely related to the world shipping and ship building industry. While the Canadian fleet does not rely exclusively on Canadian yards, over the years the expertise and quality of workmanship and related industry have attracted not only the Canadian carriers but also contracts with foreign carriers.

Most shipbuilding nations assist or subsidize their yards while at the same time protect them from foreign competition. One example of this is the Jones Act in the U.S.A. which stipulates that only United States built and manned vessels can carry cargo between United States ports. Canada imposes duties on foreign hulls brought into Canada and subsidizes the building of new vessels and major conversions.

There are three major yards in Ontario; Collingwood Shipyards, Port Weller Dry Docks and Port Arthur Shipbuilding. The first two build ships while the latter specializes in repairs and conversions as well as building component parts. The shipping industry on the Great Lakes has relied heavily on these yards as well as those in Quebec and to a lesser extent those in the Maritimes, to keep the Canadian fleet modern and competitive.

Subsidy

Shipyards, like most capital equipment manufacturing plants, do not operate for a mass market and hence are quite sensitive to market downturns. Governments have assisted shipbuilding and repair industries in times of critical need. The present existence of a modern Canadian lakes fleet is the result of a variety of shipbuilding subsidies initially implemented in 1965 at 40% and recently reduced from 20% to 8%. The continued medium and long term survival

and viability of shipyards depends on their continued ability to compete at home and abroad.

International contracts are important also, to balance the home trade and for keeping the infrastructure and expertise fully employed. The world shipbuilding slump is not necessarily over and the Federal Government policy of declining subsidy could endanger the survival of the Great Lakes shipbuilding industry.

It is recommended that:

The Federal Government be requested to review the shipbuilding subsidy programme and implement a continuous monitoring and assessment effort to ensure that subsidy levels are sufficient to maintain the international competitiveness of Canadian yards and to allow the continued viability of the Great Lakes fleet through vessel additions.

DRYDOCKS AND REPAIR FACILITIES

Canadian Great Lakes yards are at capacity in their repair capabilities because of the general increase in the size of the fleet, major repair requirements, and five year inspections. Consequently, the fleet is either being subjected to unacceptably long waiting periods or must go elsewhere for repair and 5 year inspections.

Because of exchange and duty on the cost of repairs it is very expensive for Canadian carriers to use the United States facilities.

There is a notable trend to larger than seaway size vessels in the Upper Lakes Section. The 1000 foot vessels can carry up to twice the cargo of a conventional 730 foot vessel and in the appropriate circumstances large savings can be passed along to the shipper. The 1000 foot ships in the Upper Lakes Section are owned and operated within the United States.

As an increased drydock capacity is required in the Great Lakes/Seaway System and Ontario does not currently have



Shipyards at Collingwood (top) and Fort Arthur.



the facility to build a 1000 foot vessel it appears logical that such a drydock should have the larger vessel capability. The Task Force also notes that a 1000 foot drydock would greatly expand repair capacity.

It is understood that the Federal Government is awaiting information from the Ontario Government outlining the need and most appropriate location for drydocks and repair facilities in the Great Lakes.

It is recommended that:

The ship repair capacity in the Great Lakes/Seaway System be expanded.

The Ontario Government complete the study determining the need for drydocks and repair facilities and recommend the most appropriate location.

The construction of drydock facilities be financially assisted by the Federal and Ontario Governments. The assistance should be conditional on the assurances that Canadian flag ships would obtain priority service.

Capacity

When considering capacity of the Great Lakes/Seaway System, two major components must be included, the number of transits and the tonnage carried. Capacity expressed as the number of transits indicates the number of vessels that can pass through a section, but their size, and cargo dead weight influences the total tonnage carried. Capacity expressed solely in tonnage capability is deficient because the number of transits affects the total tonnage.

Since there is only one exit from the Great Lakes/Seaway System, upbound and downbound transits are equal. Tonnage however is not equal by direction, and in 1979, 60% of all the tonnage in the Welland Canal was downbound. This imbalance is expected to increase with the growth in downbound grain and the decline in upbound iron ore. One way transits and tonnages are the basis for capacity discussion.

Upper Lakes Section

The main restriction to shipping in the Upper Lakes is the depth of connecting channels and some harbour facilities. The number of possible transits through the four parallel locks at Sault Ste. Marie is in excess of the demand.

The Poe Lock is the only lock capable of handling the larger than Seaway size vessels and the United States has indicated their concern over its vulnerability. If problems arise that make the Poe Lock inoperable for any length of time, there could be serious consequences, especially to the steel industry in the United States, since passage of larger vessels in and out of Lake Superior would be impossible.

Lake Ontario to Montreal Section

The Lake Ontario to Montreal Section carries approximately 10 million tonnes less cargo per year than the Welland Canal. The number of transits are presently well below the number possible indicating no serious capacity problems at this time. Major changes to improve the capacity of the Welland Canal will however eventually necessitate similar improvements in the Lake Ontario to Montreal Section.

Welland Canal Section

The Welland Canal is the closest to capacity of all sections of the Great Lakes/Seaway System. At peak periods, substantial delays in passage are experienced indicating the demand placed on this section. The St. Lawrence Seaway Authority has stated that the maximum number of transits that the Welland Canal can handle under present conditions is 6600 annually or 3300 one way. In 1979, 3272 vessels including those in ballast transited the Welland Canal downbound which was close to the 3300 possible in one direction. These vessels carried 46 million tonnes or an average of 14,000 tonnes per vessel.

Conclusion

The forecasts in the Products section of this report estimated that the total annual downbound tonnage in 1985 could be 63 million to 68 million tonnes. This is an increase of 20-22 million tonnes over the 1979 tonnage. This clearly indicates that the Welland Canal under present conditions and with the present fleet mix will not be able to handle the forecast demand in 1985, resulting in serious consequences not only to Ontario but to all Canada as well. Many commodities would not be able to reach their destinations. Grain, coal and iron ore could not be delivered and Canadian Industry and Canadian balance of payments would be adversely affected.

The capacity of the present system can be increased by either or both of the following: increasing the number of transits or increasing the average tonnage carried per vessel.

IMPROVEMENTS TO INCREASE THE NUMBER OF TRANSITS

There are a number of methods to increase the transits in the Welland Canal for the short term. The St. Lawrence Seaway Authority has proposed certain physical improvements all aimed at reducing transit time.

Realign Approach Walls

Vessels tie up at lock approach walls to wait for the approaching vessel to depart the lock. Realignment of the walls would allow vessels to tie up closer to the lock gate, reducing the distance to travel and thus the time required for the vessel to enter the lock.

Improve Canal Scheduling

The current traffic control centres are operated by manual and mechanical means. Computer assisted scheduling has been proposed which would reduce the transit time.

Canal Widening

One-way restrictions presently exist between Bridge 11 and Port Robinson, causing substantial delays. Work has begun in one portion however there will be limited benefit until the total one way area is widened. In addition there have been discussions on the removal of Bridge 5 between locks 3 and 4 which may also speed passage.

Shunters

Special tugs called Shunters that attach to each end of a vessel have been undergoing full scale tests by the St. Lawrence Seaway Authority. The Authority has indicated that more than a 10% increase in transits could be possible after implementation. Some of the major carriers have expressed doubt as to the success of the Shunter programme and their ability to operate on all vessels. As the use of shunters affects vessel operation, all carriers should be involved in the evaluation of the equipment and be consulted concerning any proposed implementation decisions.

Season Extension

In addition to the above physical improvements being considered by the St. Lawrence Seaway Authority, an obvious method of increasing the number of transits through the Welland Canal is an extension of the navigation season from its current 8½ months.

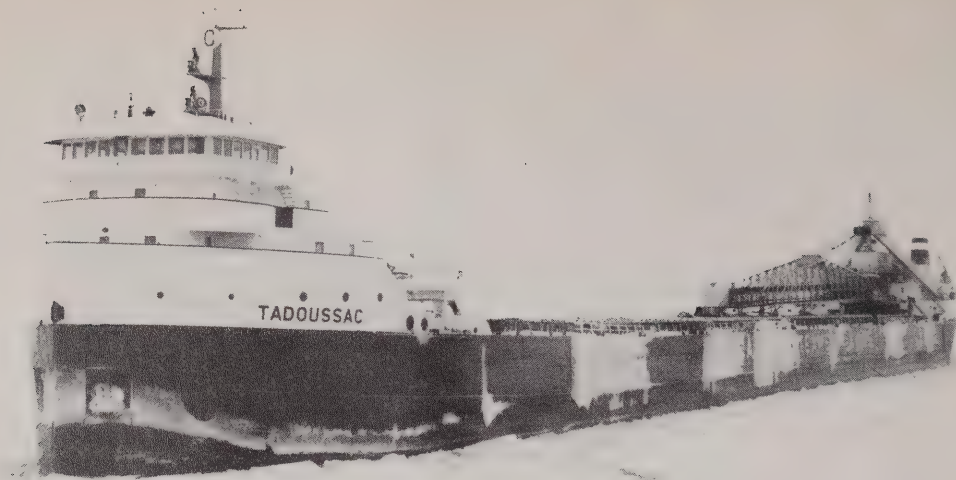
The increase in transits would not be proportional to the number of extra days of navigation, since the efficiency of the operation would be reduced by more severe weather.

Season Extension involves a number of considerations that include:

- (a) The costs and who bears them.
- (b) Conflicts with power authorities. It is the understanding of the Task Force that, under the licensing agreement with the International Joint Commission the Power Authorities are responsible for the regulation of water levels and specifically responsible for shoreline damage suffered as a result of variations in water levels. Until realistic arrangements can be made for the appropriate allocation of increased costs due to the loss of hydroelectric power generation capacity and for the assumption of liability for shoreline damage, it is unlikely that Power Authorities will embrace the suggestion of an extended navigation season.
- (c) Environmental concerns include: the potential impact of floating ice grounding in shallow areas affecting fish wintering or spawning areas; potential impact of ice movement on shoreline erosion or dock facilities; the surge created by passing vessels possibly causing shore ice to rise and fall in marina areas resulting in piles being extracted; and the completion of an environmental assessment.

All of the above require further study prior to any implementation decisions being made.

Investigations in this area to date have included the following:



Vessel in winter condition.

The United States established a winter Navigation Board chaired by the U.S. Army Corps of Engineers with the U.S. Coast Guard as vice chairman. It conducted a seven year Demonstration Programme to evaluate the extension of the navigation season on the Great Lakes/Seaway System. Several federal agencies were included, such as the Environmental Protection Agency, Department of Commerce, Department of the Interior, St. Lawrence Seaway Development Corporation and a number of other U.S. Agencies, including the Great Lakes Commission and the Great Lakes Basin Commission.

The final report of the Board, to Congress, indicated that it was technically feasible, economically beneficial and environmentally safe to proceed in the Upper Lakes with an extended season, provided careful environmental constraints were followed.

A demonstration program in the St. Lawrence River was also carried out in one specific area. Further model tests demonstrated that it is possible to transit the St. Lawrence River ice booms without disturbing ice covers so important to power interests. There was no direct Canadian participation and further investigation is required in this section of the Seaway.

Canada has not carried out a comprehensive study or demonstration project to determine the feasibility of a season extension, although the Department of Transport did, late in 1980, commission a study to examine the cost and benefits of a 9 1/2 month, 24 hour season.

To resolve the issues of season extension it is recommended that diverse interests be brought together by the Province to review past efforts and determine what remains to be done in order to determine the most practical, environmentally safe and economically beneficial course to be taken should it be necessary to extend the present navigation season.

Other suggestions have been made which could result in additional transits. These include (a) A total Vessel Traffic Advisory System to establish vessel arrival times throughout the System which would relieve congested areas such as the

Welland Canal. (b) Improved Navigational Aids which would allow faster and safer passage of vessels.

IMPROVEMENTS TO INCREASE THE AVERAGE TONNAGE CARRIED

New Vessel Construction

Each new 730 foot ship will carry about 28,000 tonnes of cargo. Larger vessels added to the fleet will therefore increase the tonnage carried over a season. Replacement of the older, smaller vessels is taking place over time but due to the large expenditures for new ships and the number that can realistically be built, it will be some time before there is an appreciable addition to the average tonnage carried per year.

To ensure that the building of new vessels occurs, an attractive financial environment must exist. The current shipbuilding subsidy does not offer such an environment.

The anticipated increase in downbound grain movements without compensating upbound iron ore, affects the cost of carrying wheat. Long term wheat transportation arrangements are required to further induce the construction of new and larger vessels.

As an alternative to the shunter program, vessels over 730 feet with greater manoeuvrability might be allowed in the locks. Extra safety measures could be incorporated to meet the requirements of the Seaway Authority. A limited number of existing vessels can be lengthened by adding a new centre section.

Increasing allowable draught

As lake levels are somewhat above the chart datum level, creating extra water depth, and a 730 foot vessel can carry 1300 extra tonnes of cargo for each extra foot of draught, the possibility of making use of this extra depth warrants extra study. It is realized that not all vessels could make use of this extra draught.

It is recommended that:

All possible short range physical improvements to the Welland Canal proceed without delay.

The Ontario Government co-ordinate all agencies affected

by a permanent season extension of the navigation season and form a working group to resolve the issues related to such an extension. This group should also outline the physical work and procedures necessary to reduce negative impacts, if any, with the awareness that any permanent season extension will be subject to an Environmental Assessment.

The Federal Government encourage long range commitments for the transport of grain as an incentive to carriers to maintain a modern efficient fleet.

The Federal Government create a working group of interested parties to investigate the feasibility of allowing ships of more than 730 feet to transit the present System.

Conclusion

While all of the above short term recommendations when implemented will assist in increasing the capacity of the System, it is unlikely that all of the improvements combined will allow the System to carry the 1985 forecast demand of 63 to 68 million tonnes downbound. With indications that demand will be maintained or increase after 1985, major physical improvements become inevitable despite their cost, if the System is to grow.

MAJOR EXPANSION

A major expansion of the Welland Canal will lead to similar changes being required in the Montreal to Lake Ontario section. A new Welland Canal will allow larger and/or more vessels into Lake Ontario from the Upper Lakes but benefits will only accrue if those vessels have access to the Lower St. Lawrence River through the Montreal to Lake Ontario Section.

Some of the options possible to accomplish a major expansion are to twin the existing facilities and retain the maximum vessel length of 730 feet or enlarge the system to allow passage of 1000 foot vessels. All options must be explored.

Regardless of the selected option a great deal of time will be required to plan and design a major new facility. Many concerns will have to be addressed, many interests will have to be satisfied, and approval of the governments of the United States and Canada will be required before any implementation occurs.

It is recommended that:

Planning and design begin at once for a major enlargement of both the Welland Canal and the Montreal to Lake Ontario Section of the Great Lakes/Seaway System. Such planning should be conducted in concert with United States Seaway interests, and implementation dates should be specified.

Other System Issues

Navigational Aids

The present floating navigational aids cannot be maintained in ice conditions and full utilization of the existing 8 1/2 month season is not possible. After their removal navigation is restricted to daytime hours and favourable weather. The high capital and operating costs of vessels justify improved navigational aids to allow greater utilization of the existing season and reduce the risk of accidents.

Research has now been underway to improve the existing navigational aid system. This new technology will allow faster and safer passage of vessels through open and

confined channels of the System especially during unfavourable weather conditions.

It is recommended that:

Steps be taken to allow floating navigational aids to remain in operation for the full navigation season.

Research and development be expedited and co-ordinated with present United States efforts for early implementation of improved navigational aids in the Great Lakes/Seaway System.

Coast Guard

In both Canada and the United States, vessels are required to meet the appropriate standards of the respective Coast Guard. The Canadian and United States Coast Guards share the responsibilities for maintaining navigational aids and rescue work in the System. The responsibility for rescue will be discussed more fully in the Safety Section, however it is important to reiterate here the often stated concern that the Canadian Coast Guard is not a sufficiently visible element in the Great Lakes/Seaway System. Increased equipment and facilities are required to ensure this visibility and effective operation. As discussed earlier in the Policy Section, annual inspection for certain mechanical items are carried out and every five years major structural items are inspected. There appears to be some redundancy in the Canadian Coast Guard inspection as some are duplicated when compulsory inspections are carried out by Classification Societies for insurance purposes.

The Canadian Coast Guard also has the responsibility for ice breaking, but a Canadian ice breaking policy is not evident. It appears that ice breaking occurs only when pressure is applied for action in specific areas. The problem seems to stem from an unwillingness to commit funds. The Great Lakes/Seaway System must be treated like the rest of Canada where Federal funds are made available for ice breaking activities.

It is recommended that:

The Canadian Coast Guard be given adequate funds to develop a meaningful presence in the Great Lakes/Seaway System.

The duplication of compulsory vessel inspections be eliminated.

Adequate icebreaking equipment be available in the Great Lakes/Seaway System and the costs of icebreaking be borne by the Federal Government as in other parts of Canada.

Incremental Good Weather Season Extension

This type of extension appears reasonable at the end of some shipping seasons when weather conditions are not severe. One of the associated problems is that the weather could rapidly deteriorate causing System closing till spring and lake vessels would have to be moored within the System for the winter months. The advantages of such an extension apply predominantly to lake vessels. Ocean vessels should still clear the System at a predetermined fixed time as is now the case. One of the conditions of such an extension would be an agreement with the owners of lake vessels to lay up for the winter if conditions warranted immediate closing.

It is recommended that:

When weather conditions permit, a season extension be automatically implemented on an incremental basis. Necessary planning for this activity be carried out early in the shipping season.

Pilotage

The Pilotage Act of Canada requires vessels transiting designated regions in the St. Lawrence River and the Great Lakes/Seaway System to have a fully qualified pilot on board, supplied by the Pilotage Authority. Canadian vessels in the Great Lakes have received year-to-year exemptions from that requirement for the past eight years. There should be no requirements for pilots where these vessels have Masters with qualifications and experience. The repeated exemption demonstrates that this is the case. This exemption therefore requires formalization.

It is recommended that:

The Canadian Great Lakes Fleet be permanently exempted from compulsory pilotage west of Montreal.

Merchant Marine

Vessel operation under Canadian and United States labour laws, with North American capital, costs and overhead, is not competitive on the high seas. If the market were left to its own devices, the number of North American flag vessels would be drastically reduced. Vessel owners would fly "flags of convenience", basing their fleet in jurisdictions with few safety regulations. Vessels would be built and manned with cheap labour.

The United States marine policy is largely based on the assumption that for strategic purposes, it is necessary for America to have a merchant fleet available to move goods and armament in the event of real or threatened war. The United States Government has been prepared to offset the additional costs to operators that occur during peacetime operation under the American Flag.

In Canada, there has been total reliance on global market forces for the provision of shipping capacity since the end of World War II. To date, the Canadian Government has not seen that it is necessary to take any action to ensure a Canadian presence on the high seas.

There are many changes occurring in international trading practices. Some of these such as bilateral cargo sharing agreements, are seen to threaten the ability of Canada to continue to trade on equal terms with its historical and newly found trading partners. This ability must be maintained.

It is recommended that:

Should the Federal Government decide that a Canadian Merchant Marine is necessary to the national interest, Ontario support this decision provided that (a) the programme does not create a financial burden to the taxpayer; (b) Canadian shippers are not compelled to use Canadian flag vessels; (c) non-subsidy incentives are used to stimulate the development of a Canadian flag fleet.

Tolls

All movements of traffic through the Great Lakes/Seaway System are affected in varying degrees by the imposition of tolls. As indicated in the Policy Chapter, the increase in tolls was disputed by the users who felt that they could be self-defeating. Increases could become a hardship to Canadian industry and would not be in the public interest. Owing to the fine cost balance between moving iron ore upbound from Quebec/Labrador to the steel mills on the Great Lakes, and the salt water movement to United States Atlantic ports for inland movement by rail, any imposition of tolls must be very carefully weighed. With the downbound tonnage of grain exceeding that of upbound traffic, no

further upbound erosion can be tolerated not only for keeping steel industry costs within bounds, but in maintaining Canada's competitiveness in world grain markets.

It is recommended that:

The Ontario Government take the position with the Federal Government that any tolls policy on the Great Lakes/Seaway System be closely monitored to assure that the Canadian economy is not adversely affected.

St. Lawrence Seaway Authority

The St. Lawrence Seaway Authority is a Crown Corporation which reports to the House of Commons through the Minister of Transport. Its responsibilities are to operate and maintain the Montreal to Lake Ontario Section of the Seaway and the Welland Canal. It shares the responsibility in the International section of the St. Lawrence with the American St. Lawrence Seaway Development Corporation. Two of the seven Seaway locks are operated by the United States.

Although the St. Lawrence Seaway Authority as a Schedule "D" Crown Corporation would normally report directly to the Minister, it presently reports to the Marine Administrator of Transport Canada.

The construction of the St. Lawrence Seaway and the Welland Canal was originally paid for by government tax revenues. The intention was that costs would be recovered through user tolls. In 1973 the system went into a net operating deficit and as previously indicated after long discussions, toll increases were implemented in 1978. Complaints were often heard that the Seaway Authority was not adequately serving the system users in terms of negotiations and discussions related to these toll increases.

The Authority has taken recent initiatives to improve communications between themselves and the users. The Seaway has played a vital role in Canada's economy and will continue to do so but further steps must be taken to give management of the St. Lawrence Seaway Authority some true autonomy in their administration. Greater autonomy is essential for such a body to effectively achieve its mandate. The effectiveness of the Authority could also be improved by broadening representation on the Board of Directors. In particular the addition of representatives from the Provinces affected by its operation is desirable.

It is recommended that:

The St. Lawrence Seaway Authority, a Schedule "D" Crown Corporation, be given all operating freedoms of a Schedule "D" Crown Corporation. It should not be an administrative arm of Transport Canada. There should be broad representation including that of the Provinces on its board.

International Cargo Constraint

A number of the Harbour Commissions believe that the import/export rail rates discriminate against the movement of international cargo via the Great Lakes/Seaway System.

It was not within the terms of reference of the Task Force to investigate this issue. However, as this matter has an important bearing on the economy of Ontario it is recommended that:

The Province undertake a review of the import/export rail rate structure to determine the existence and extent of discrimination against Great Lakes Ports and take steps as necessary to eliminate or reduce such discrimination.

4

The People

Manpower and Training

The manpower requirements to efficiently operate the Great Lakes/Seaway System encompass a large number of people in a proliferation of jobs ranging from management to line-handlers, captain to seaman, chief engineer to oiler, port manager to stevedore, coast guard inspectors, grain inspectors and communication controllers plus the many jobs associated with shippers and producers.

Labour-Management Relations

Generally speaking labour laws permit the withdrawal of union labour as well as management lockouts under certain conditions. These can have serious negative effects not only on the System and Ship operation but ultimately on the producers and users of raw materials and the population at large.

A number of suggestions can be made which, given due consideration by governments, labour and employers could be helpful in safeguarding the efficient operation of the System and protect the many employees in the associated industries.

1. In view of the serious impact that a System shutdown would have on the economy of Ontario, both labour and management should be encouraged to more vigorously pursue resolution of their differences other than through

labour withdrawal or management lockout. This could include more widespread negotiation of labour contracts on a continuing basis rather than awaiting their lapse.

2. A government, labour, management monitoring committee should be established which would recognize in advance potential dangers of withdrawal and encourage the action necessary to avoid such problems.
3. The Federal Government should work together with labour and management to create mutually acceptable mechanisms which would ensure that major labour management disputes would not escalate to crisis levels.

Although it may be difficult to face such issues, if they are not faced, as a nation and a province we must accept the fact that the increased costs will not only be a burden to the whole population, but also affect the competitiveness of an industry essential to the economical movement of commodities important to all Canada.

Training

The training of all categories of personnel was often raised as an issue before the Task Force. Considerable training of personnel is required to operate the multi-million dollar vessels of today with their complex and sophisticated machinery and equipment. The concerns that exist for training of both seamen and officers are similar. Qualified, responsible individuals are required in both Seaman and Officer ranks.



Need

Recently a definite shortage of well qualified Seamen and Officers has become apparent. There has been some improvement in the availability of Seamen. Because of vacations, absenteeism, etc. shortages still exist during some parts of the navigation season.

Before specific recommendations can be made additional information is required to determine the number and types of personnel required by the vessel operators. A reliable data base does not exist that would provide information on the availability, quality, numbers and requirements for manpower on the Great Lakes commercial fleet. When the forecasts of commodities to be moved come to fruition, the need for well qualified personnel will increase substantially. Vessels and their crewing requirements need to be monitored.

It is recommended that:

The Federal and Provincial Governments, with the assistance of industry, initiate a statistical programme to determine the numbers of trained Seamen and Officers required to meet the needs of the Great Lakes fleet.

Training: Seaman

A training school for seamen has been established at Morrisburg, Ontario through the joint action of the shipowners and the Seafarers' International Union. This school provides both basic training for new recruits and courses for experienced personnel who wish to advance within their category. The emphasis at the school is not solely on the acquisition of skills, but also on developing a well rounded responsible person to be part of the team operating the vessel. This school has been successful in beginning to meet the needs for trained seamen and its operation should be monitored to determine its continued progress.

The shipowners also provide in-house training. For example, Upper Lakes Shipping Ltd. operates a vessel with two crews on board, one of which is 'in training'. Both practical and classroom training occurs. After six weeks of training the seaman moves to another vessel ready for duty.

Both of these training programmes assist in overcoming the lack of trained seamen.

Training and education of seamen is not carried out by the Provincial Government. As this is the level of government which holds the primary responsibility for education there appears to be a serious oversight. The co-ordinative abilities of the Government of Ontario in the field of education would be an asset in ensuring that proper training is available for seamen.

It is recommended that:

The Ontario Government extend its mandate in the training area to include co-ordination of seamen training with existing training programmes.

The government through the Ministry of Education and the High Schools provides guidance to young people in career selection. This programme currently does not provide information on a seafaring career.

It is recommended that:

The Ontario Ministry of Education develop material aimed at attracting young people into a seafaring career.

Ontario is a world leader in correspondence courses, and in many media and communications areas. This expertise is not being channelled toward personnel on the Lakes.

It is recommended that:

The Ontario Ministry of Education develop special correspondence programmes for Seamen.

Officers

A training programme exists at Georgian College (Owen Sound) for mates and officers. Winter only programmes exist at Niagara College and Confederation College. The information provided to the Task Force indicates that there is presently a serious shortage of trained officers at all levels. Exact manpower requirements are not yet known but once the need has been determined, as recommended earlier, the adequacy of the current facilities should be assessed to determine if they are sufficient to meet the needs.

No co-ordinated programme exists for attracting new recruits to view the life as an Officer on the Great Lakes fleet as a career alternative. This is an area in which the province could play a role particularly through the secondary school system. Currently very little information exists outlining the future of such a career.

It is recommended that:

The Ontario Ministry of Education take steps to ensure the secondary school system obtains and displays material promoting life as an Officer on Great Lakes vessels as a career alternative.

There is a requirement for upgrading the qualifications of officers currently employed on vessels. Motivation is a key to encouraging these people to seek advancement. The cadet programme at Georgian College as currently operated for officers is working well and should continue to be encouraged and expanded.

Safety

There are three important and distinct aspects of safety related to commercial shipping, the safety of the vessel operation, the safety of the persons working on the vessel, and public safety.

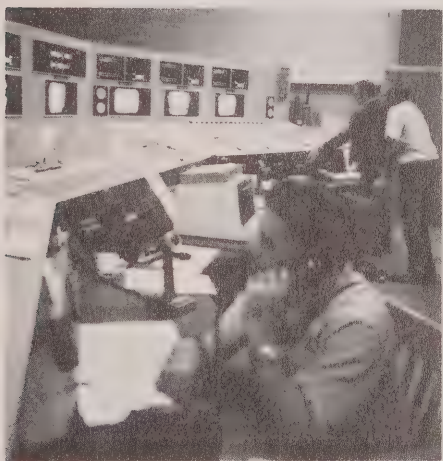
All of the safety regulations respecting the vessel are under federal jurisdiction. (Due to changing circumstances, new vessel types and other developments, the Canada



Ship crews.



Traffic control



Shipping Act regulations are under continuing review.)

The Canadian Coast Guard has the responsibility of enforcing the regulations. The regulations as they presently exist are considered adequate but their enforcement could be improved.

This enforcement is dependent upon the Coast Guard having sufficient resources to carry out their responsibilities. Concern has been expressed that this is not the case. Such enforcement capability is essential to ensure compliance with safety rules and regulations and to ensure that vessels in the Great Lakes fleet meet the highest standard of safe operation.

Another element related to vessel safety is the rescue capability for both large and small craft mishaps. Problems of jurisdiction were frequently raised. Throughout the Great Lakes/Seaway System there is confusion as to who has the responsibility for safety enforcement and rescue. In some areas the Canadian Coast Guard does not appear to be visible nor does it appear to have sufficient rescue capability.

It is recommended that:

The Ontario Government request the Federal Minister of Transport to initiate a study to clarify the responsibility for marine safety on the Great Lakes/Seaway System and co-operate in such a study through the Ontario Provincial

Police and by encouraging municipal police force participation.

Personnel Safety

The safety programmes for personnel on the commercial vessels seem to be behind those of land based industry. Requirements for safety drills, inspections, safe practice monitoring, etc. are not co-ordinated by any visible body. Part of the problem appears to lie in the area of training programmes available to the work force. There is also a need for a better general attitude toward safety aboard the vessels—an essential overall requirement. Any training programmes must concentrate not solely on technique but attitude also.

It is recommended that:

The shipping industry emulate the practice of other industrial sectors by instituting safety programmes and training sessions.

Small Craft

Over the last few years there has been a considerable increase in the number of pleasure craft operating in Ontario waters. These numbers have led to increased potential conflict with large vessels in busy shipping lanes. Many small craft operators are unfamiliar with proper methods of handling and operating their vessels. This

knowledge is essential in view of the reduced maneuvering capability of large vessels in constricted areas.

Considering the hazard that exists in so many areas throughout the Great Lakes/Seaway System

It is recommended that:

The Ontario Government take the lead in requiring that small craft operators be properly educated in the safe techniques essential to the operation of pleasure craft.

Environment

The terms of reference of the Task Force states that it will: identify any environmental concerns relating to marine issues in the Great Lakes/Seaway System in order to respond to specific issues.

In identifying these concerns the Task Force reviewed the past history of vessel operation on the Great Lakes to determine its relationship to the environmental quality of the Great Lakes/Seaway System. As well, the briefs received were searched for the primary concerns identified in the transportation System. 'Environment' therefore deals with, shipping (vessels in the system), extension of the navigation season (examined in The System Section), the environmental assessment process, and dredging.

Before discussing these four items it is important to state that the Great Lakes did, as development occurred along their shores, experience a significant deterioration in water quality. Land based pollution sources such as industrial wastes, municipal sewage and agricultural runoff contributed significantly to this deterioration. Shipping activities were also a factor but to a relatively minor degree.

Canada and the United States recognized that these conditions in the Lakes required improvement and in 1972 signed the Great Lakes Water Quality Agreement.

Improvements in water quality have occurred in the Great Lakes/Seaway System since then, notably in the lower Lakes. The Great Lakes Water Quality Agreement was renegotiated and revised in 1978 to reflect current problems. The efforts and controls required under the new agreement should ensure further environmental improvements. (Related Ontario legislation, and Canada-Ontario Agreements are included in Appendix III.)

Shipping

Historically shipping operations have not caused serious deterioration of water quality. In 1970 the International Joint Commission reported however that operational wastes and spills had contributed to the water quality problem. Since that time marked improvements have been made by the industry and today it is generally recognized that vessels effect the environment less severely than other modes of transport. To further ensure that current water quality does not suffer, many regulations have been established to which the shipping industry must adhere and continued efforts are required to maintain the good record of the industry.

The 1978 Agreement provided for improved control of vessel wastes including discharges of oil and toxic substances. It also included the joint Canada-United States Marine Pollution Contingency Plan for the Great Lakes which deals with preparedness measures, containment and clean-up methods. Inventories of sensitive shoreline areas and conditions are maintained to assist in prompt and appropriate response to incidents. The U.S. and Canadian Coast Guards are responsible for the co-ordination of all agencies in the case of a shipping incident where oil or hazardous chemicals may enter the water.

The major environmental issues raised respecting vessels are:

1. the threat of accidents involving tanker vessels and vessels carrying potentially hazardous materials. Specific recommendations regarding training and improved navigational aids are made elsewhere in this report. Such recommendations are designed to reduce the threat of accidents.
2. disturbances caused by vessel transit, particularly in shallow water and restricted channels.
3. the discharge of salt water ballast and consequent possible introduction of foreign species into the Great Lakes. The Provincial and Federal Governments have begun a co-ordinated research project into the potential for ecological disruption and the risk to public health from contaminated ballast water.

The issues raised above are important and continued thought and effort will be required by all parties to reduce these hazards to a minimum.

Extension of the Navigation Season

The environmental aspects of this issue have been considered elsewhere in the report with the discussion of increased capacity options.

Environmental Assessment Requirements for New Projects

An environmental assessment process currently exists at both the Federal (The Environmental Assessment and Review Process) and Provincial (Environmental Assessment Act) Government levels. (See Appendix III for process review).

All major development projects receiving government funding require environmental approval. In addition, Ontario private sector projects may be placed under the review process at the discretion of the Minister of the Environment. Depending upon the particular circumstances either the Provincial or Federal Government will assume the lead role in the review process, which is intended to identify in the planning stage both the advantages and problems of new or expanded facilities, together with the means of avoiding or minimizing environmental problems. Guidelines for project development are provided by the Province. Projects of direct concern to the Task Force which will probably require environmental assessment relate to possible extension of the navigation season, new or expanded loading and storage facilities, drydocks, locking, harbour facilities, and dredging programmes.

The concern expressed regarding this process lies basically in the length of time required to carry it out. Although theoretically only 6 months to a year and a half is required to complete an environmental assessment, in practice the process may extend beyond this period. This often results because information brought out during the process requires further clarification.

The process requires examination so that it does not carry on unduly. Further, there appears to be insufficient co-ordination between the proponent and the government which can lead to confrontations which delay the process and cause extra costs. In this respect transportation and environmental objectives should be carefully considered at the beginning of any project and this co-operative approach continued through the environmental review process.

The environmental assessment and review process is viewed by the Task Force as an important component of transportation planning. Time could be saved were transportation and environmental planning integrated early to permit satisfac-

tory scheduling of construction and maintenance (dredging) projects. Delays presently encountered with projects could be readily resolved by greater co-ordination between a proponent and the government with early involvement of the public. Governments should examine ways of expediting the planning process and offer guidance in those cases where it has become clear that supplemental data is required to complete the assessment process. As part of the above review,

It is recommended that:

The Federal and Ontario Governments review the transportation planning process and the environmental review process to ensure that necessary information required to reach an informed decision is always expeditiously received. Co-ordination and co-operation of the concerned parties, the proponent, the regulatory authority and the public, must be encouraged at the outset of any project and continue through the process to completion. The Federal Department of Environment and the Ontario Ministry of the Environment in implementing the above recommendations examine the overall timing to establish definitive time limits. Extension of any time limits should be allowed when it has been clearly determined that additional data is necessary that was not evident at the beginning of the process.

Dredging

There are two categories of dredging, capital and maintenance. Capital dredging is the creation of new or deeper channels to serve navigation or extended harbour development. Maintenance dredging is the removal of sediments deposited in the shipping channels from soil erosion or the movement of sand along the shore by waves and currents.

The main issues related to dredging are:

- (a) The need to have an overall plan of dredging projects established sufficiently in advance to allow adherence to the environmental review procedures.

All capital and maintenance dredging projects are subject to an environmental review process. This can be a very lengthy process and if dredging is delayed it could affect the movement of ships. Co-ordinated transportation and environmental planning would ensure continued vessel operations in the System, without disruption that might be caused by dredging delays.

It is recommended that:

The Federal Government establish and publicize a long term dredging programme to allow the transportation system to be utilized to its best advantage and allow adequate time for environmental approvals.

- (b) The extraordinary costs that are now associated with dredging projects due to the environmental requirements regarding disposal of contaminated dredged material.

Capital dredging does not usually involve the removal of contaminated material. Maintenance dredging in the vicinity of populated areas often involves the removal of contaminated material, which has been deposited from land-based pollution sources. Municipal and industrial wastes have added heavy metals and organic contaminants. Other polluted sediments from soil erosion entering rivers and streams cause further pollution. The specific source of the pollution covers a wide area well beyond the dredging area and it is difficult to identify actual sources. Where a present polluter can be identified, corrections must be made at that source to prevent or control the pollution. As the cost of



Early dredging activities and creation of an aquatic park (1974).

corrective dredging often involves the removal of contaminated sediment from past sources it should be at least partially funded by society in general. This could be through some form of subsidy for local dredging projects.

If, however, the present polluter can be identified, corrections must be made at the source and that source should share part of the costs of dredging.

It is recommended that:

The Ontario Government immediately examine with the Federal Government a method of funding extraordinary dredging procedures related to past pollution problems.

Where the current source of pollution is known and extra costs are required to dispose of contaminated material caused by such pollution, that the polluter be required to pay these costs.

(c) The appropriate procedures for disposal of contaminated dredged materials.

The disposal of the polluted sediments from dredging is another Task Force concern. The Great Lakes Water Quality Agreement prohibited open water dumping and suggested the development of compatible criteria to guide disposal. The accepted solution is to contain the polluted material behind enclosing dykes. This solution is very costly (sometimes 600% more costly) and it is difficult to find suitable containment areas.

New methods of dealing with dredged material require investigation. Using the dredged material as a resource to create new recreational and wildlife areas requires examination. While many aspects of dredging and disposal can be studied in a general way, the actual solution to a particular location must be considered on a site-specific basis.

It is recommended that:

The Federal and Ontario Governments investigate and review new and existing dredging procedures, and methods of disposing of dredged materials.

(d) Dredging associated with new, deeper or extended harbour development may require the use and possible loss of important wetland areas.

A review by the Province of Ontario is currently underway to identify environmentally sensitive areas to assist in planning the coastal zone of the Great Lakes.

The development of an effective review should also identify areas where commercial developments could be carried out without causing negative environmental impacts.

It is recommended that:

The Ontario Government expedite the review and identification of environmentally sensitive areas. Also an identification of potential sites suitable for development with minimal environmental negative impacts should be carried out.

Public Awareness and Commercial Promotion

1. Public Awareness

Throughout the course of the public meetings held by the Task Force, it was apparent that the interest of the general public in the Great Lakes/Seaway System was limited. Those who came to the meetings represented associations, specific interest groups, or were public officials whose jobs involved them in the System.

The point was made repeatedly to the Task Force that the



entire Canadian public including the West, where over half the total traffic of the System is produced, had virtually no knowledge of or interest in the Great Lakes/Seaway System.

In the event that the projected traffic materializes, it appears clear that the present System will be pushed past its capacity limits. If this happens, all those involved in Great Lakes/Seaway System use will be affected in one way or another. The extra costs of congestion must be eventually passed on to the consumer, be they purchasers of bread in Canada or abroad, or the Canadian industrial complex, in particular the steel companies.

There are hidden costs to System congestion. If capacity is



strained, Canadian goods will not be able to meet the demands of the marketplace. If industrial or agricultural production cannot get to the market without unpredictable delay, the markets will evaporate. Great Lakes/Seaway System congestion would have alarming negative economic impacts for Ontario and Canada. Demands for Canadian exports would diminish sharply.

If expansion of the System is required, the public purse will have to bear the cost. This is traditional in Canada, since the infrastructure of our national transportation systems have always been publicly funded. (eg. CPR landgrants, municipal rail land grants, ports, the original Seaway, highways, the nation's airports.) If the public purse is to pay,

then the public has to be convinced that there is a good case for such an investment. The Task Force has concluded that the Canadian public has little knowledge of and hence interest in inland waterways. Will that same public support the use of its tax money for expansion of the System?

Could the participants in Great Lakes shipping be asked to run publicity campaigns to show the public how important the Lakes are? Those involved are the grain companies, the steel companies, the lake carriers, the unions, the ports and the St. Lawrence Seaway Authority.

Of these groups, the lake carriers, the unions, the ports and the Authority are the ones whose primary business is related to transportation. Some of them have demonstrated that they are most competent at mounting public relations campaigns directed at their immediate market. However, none of them have shown any demonstrable expertise at reaching out to the public at large, to make their case and win public support.

That leaves the shippers. Are they capable of politicizing the issue to allow the public to make an informed judgement on the merits of system expansion? The conclusion would appear to be a qualified "no". The track records of the corporations involved are exemplary — in a business sense. Yet, with one notable exception, they have not gone out to sell themselves to the public and explain the vital role they play in the Canadian economy.

This is not to suggest that these agencies should be ignored.

It is recommended that:

The principal shippers, carriers (through the Dominion Marine Association), related unions and the St. Lawrence Seaway Authority be encouraged to recognize that it is in their best interests to raise public awareness of the importance of the Great Lakes/Seaway System to employment and economic well being throughout Canada. The Province of Ontario should take the initiative in encouraging these agencies to remind the Canadian public on a consistent basis, about the vital importance of the System to Canada's future.

The foregoing is, of course, not sufficient to resolve the problem. If Seaway expansion is required by traffic growth, then an agency is going to have to be established to assume the responsibility for making the case to the public. The individual shipping entities are likely to have their efforts mistaken for self-serving actions if the public does not recognize an overall need which transcends the interests of the commercial organizations.

To do this effectively requires careful definition of the parties who benefit from the presence of the System. One area where a great deal of provincial contact is made is with elected representatives and public officials at the Federal, other Provincial and Municipal levels.

It is recommended that:

The benefits of the Great Lakes/Seaway System be emphasized at every opportunity to all elected representatives and public officials at each level of government.

The Ontario Government ensure that the International Joint Commission be regularly made aware of information related to the economic health of the System.

A second area is the user associations who have an interest in the development of Canada's transport system. The Canadian Manufacturers' Association, the Canadian Industrial Traffic League, and the Importers and Exporters, are the principal organizations involved.

It is recommended that:

All user associations be involved in publicizing the System benefits.

Then there is the general public. There are several ways to inform the electorate. The principal one is through their elected representatives, and this should occur as a result of the above recommendations.

It is recommended that:

Programmes be funded by the Ontario Government to tell the story of the Great Lakes/Seaway System and its significance to the entire continent.

Joint Canadian/United States efforts in areas of mass communications (television, film, periodical and daily print media) be utilized to emphasize that the benefits of the Great Lakes/Seaway System transcend national boundaries.

Up to this point the discussion has centred on promotion as a process of raising public awareness of the Great Lakes/Seaway System to ensure that it continues to receive the amount of public support that it requires to fulfill its function as a vital artery for North America's bulk commodities. There is another type of promotion which must be implemented if the stated goals of public awareness and support are to be achieved — that is commercial promotion.

2. Commercial Promotion

Commercial promotion consists of selling the Great Lakes/Seaway System to those who are currently non-users but have the potential to be users. It is also a process of convincing those who are currently users, that the options are less attractive than the Seaway.

Commercial promotion requires carefully tailored programmes for each of the markets served by the system. At present, there is one publication, a bi-national regional business magazine, *Seaway Review*, which promotes the Seaway System, working closely with Canadian and United States governments, ports, industries, and shipping organizations. It is the sole vehicle for system-wide commercial promotion.

The International Association of Great Lakes Ports (IAGLP) is an active marketing agency which is self financed. The IAGLP is only interested in promoting terminals and general cargo, and has a severely limited budget. Its advantage is that it is the only marketing agency representing both Canadian and American commercial interests. A recently formed international ad hoc committee developed from the meetings of the Task Force, and is now in the process of developing new promotional priorities.

There have been questions raised as to whether bulk cargo requires any promotion at all. The innate competitive ability of water transport for bulk cargo does not really leave shippers of bulk goods any choice as to mode for movements through the Great Lakes corridor, unless winter movements are essential. In this case, rail wins out. Otherwise, water captures the traffic by virtue of its efficiency and promotion of the traditional moves may well be redundant.

Future bulk cargoes, whatever they may be, may well require promotion of some kind. The spark which triggers future coal, potash, sulphur, iron ore or other shipments on the lakes to supplement the traffic which is already there, may well come from continual effort to market the System. The Lakes are one of the continent's forgotten assets and they require commercial promotion.

This brings us back to general cargo. Examining the revenue statistics of the St. Lawrence Seaway Authority shows what a small percentage of the total traffic general cargo represents. In the years 1975 to 1979 the total

tonnage of the facility was averaging 75 million tonnes, while general cargo accounted for less than four percent of this total.

The question has been asked as to what merit there is in undertaking any promotion of the system in light of the apparent unimportance of general cargo to the total traffic figures. The answer to that question comes in two parts. The first deals with relative revenues for the Seaway itself, and the second lies with the ports.

By its very nature, general cargo is more valuable to the shipper than is bulk cargo. As value-of-service pricing is usually used in establishing transport tariffs, general cargo yields double the toll revenue per unit that bulk cargo does. From the point of view of the Seaway management, who must operate as close to a commercial operation as they can, additional revenue must have some attraction. At the moment, neither agency has an explicit mandate for promotion. If additional traffic can generate more revenue than is entailed in promoting it, neither the American nor the Canadian Seaway bodies should ignore promotion.

General cargo has an economic importance to ports and the hinterland which varies between mild and vital. On both the Canadian and the American side, there are ports which have a large base of bulk cargo traffic and to whom general cargo revenues represent additional profits. Both countries also have ports which are almost totally dependent upon general cargo for their income, and to whom general cargo promotion is a matter of life and death.

Questions have been raised about the need in the total transportation system for inland ports, given the presence of the ocean/rail systems from the East Coast to the Great Lakes industrial basin. The answers are not obvious, but one thing is certain. Seaway service is not being sold nearly as actively as is the ocean/rail system but the Seaway competition is having a healthy effect upon the ocean/rail rates.

Under these circumstances, it would be unfortunate if the Seaway system for general cargo was not given an opportunity in the international market to compete for the traffic on an equal promotional basis.

Throughout the public meetings, the matter of joint funding by ports and respective municipalities for such an effort was discussed. The idea met with reception that ranged from enthusiastic to "let's consider it". Under the circumstances, it appears to be a worthy endeavour for the Province to undertake.

It is recommended that:

The Ontario Government and the Federal Government create a marketing agency for the Great Lakes/Seaway System involving the domestic and foreign offices of the Provincial Ministry of Industry and Tourism, as well as the Federal Department of Industry, Trade and Commerce. The agency should be funded from all the interested and/or beneficiary parties.

Closing Recommendation

As a final recommendation the Task Force suggests that upon completion of its work, a permanent structure be established within the Ministry of Transportation and Communications to ensure that the issues identified by the Task Force are properly addressed. Too often, after a report is filed and a group disbanded, the efforts of the group and the thrust of the report tend to be forgotten.

The Task Force trusts that the above conclusions and recommendations will provide the basis for an Ontario policy regarding the Great Lakes/Seaway System and the marine transportation industry it supports.

Appendices

Appendix I	Minister's Statements (a) March 25, 1980 (b) May 16, 1980
Appendix II	Relevant Policy Legislation (a) Canada (b) United States
Appendix III	Environment (a) Environmental Assessment Process (b) Legislation and Agreements
Appendix IV	Public Participation (a) Public Meetings Schedule (b) Major issues from briefs, and supplementary submissions (c) Correspondence
Appendix V	Glossary
Appendix VI	Selected List of Resource Materials

APPENDIX I (a)

March 25, 1980

Statement in the Legislature by Honourable James Snow Minister of Transportation and Communications

Great Lakes/Seaway Task Force

Mr. Speaker:

As you are aware in the Speech from the Throne, this government indicated its intention to take a greater interest in the water transportation systems serving our province and to review the potential of water transport on the Great Lakes and Seaway systems.

Today, I wish to announce to the House the steps my ministry will undertake to focus attention on the importance of the Great Lakes/Seaway System to the overall economic well-being of our province.

We are all aware Ontario is the host province for a great number of the facilities which comprise the St. Lawrence Seaway Transportation System. We have five major ports . . . 369 other dockage facilities . . . and the eight-lock Welland Canal . . . all within our provincial boundaries.

While historically, the provincial position on issues relating to these facilities has been that the marine mode comes under the jurisdiction of the federal government, the sheer economic importance of this system to Ontario industry . . . and the balance of our overall transport system . . . compels us to now take a stronger stand on Great Lakes/Seaway policy.

We take this stand with good reason . . . because much of Ontario's industrial base is dependent on the automotive industry which, in turn, depends to a high degree upon the steel producers of the province.

And without the marine transportation facilities serving our province, the steel industry would not exist in anything like the scale we see today.

We can now see where economic and energy conservation pressures will lead to an increased use of intermodal transport within the province and necessitate a greater need for co-operation between federal and provincial governments towards transportation policies.

The Great Lakes are a part of our provincial heritage and the Seaway System is an integral part of our provincial economy. Therefore, we . . . as a government . . . must be prepared to take the appropriate actions to ensure Ontario receives its fair share of the federal subsidies and support provided to marine facilities.

With these considerations in mind, I am establishing a task force to undertake a review of the Great Lakes/Seaway transportation system . . . with special emphasis on the facilities within Ontario . . . to help develop a provincial perspective with regard to this important facet of our overall movement of people and goods.

Mr. Speaker, I am pleased to announce today that Mr. Ralph Misener, the retired chief executive officer of Misener Transportation Limited, has accepted my invitation to act as chairman of the Ontario Great Lakes/Seaway Task Force.

Mr. Misener is an individual with not only many years of experience in the marine transportation field, but the reputation of being able to successfully complete programs placed before him . . . while achieving the appreciation of those he works with.

I am sure Ralph Misener will represent us well in this task of reviewing and reporting on the state of Ontario's marine transportation industry.

We plan to have the chairman conduct meetings in various communities to seek the advice of local officials from the towns and cities along the waterway.

Mr. Misener will also invite organizations such as the Great Lakes Waterway Development Association, The Dominion Marine Association, along with the unions representing the labour force on the waterway, to submit briefs outlining concerns and comments that will assist the task force in fulfilling its mandate.

I am asking that during the next few months, the task force examine the economic components of the Great Lakes/Seaway System . . . including the ports, the carriers . . . the locks and canals . . . the shipbuilding and ship-outfitting industries . . . and the marine supply industry . . . so we can analyse and publicize the importance of marine transport to the economy of Ontario.

They will also examine the related shipping requirements of various industries served by the Great Lakes/Seaway System . . . and document current policies under which this marine mode operates in Canada and the United States.

In addition, the task force will identify environmental concerns related to transportation on the waterway . . . and prepare policy recommendations and options for the province . . . all aimed at improving the efficiency of the system as one of the transport modes within the total provincial transportation scheme.

They will also undertake liaison with both the United States Great Lakes Basin Commission and the Great Lakes Commission so we can assess the feasibility of similar interjurisdictional panels on this side of the border.

I am asking the Task Force to report back to me by the end of this year's shipping season . . . and I fully expect their report will provide the province with the information we require to assist us in negotiations with Ottawa for the encouragement and development of a more efficient and productive marine facility along Ontario's section of the St. Lawrence Seaway System.

Finally, Mr. Speaker, I will be reporting further on the make-up of the task force.

I don't have to tell the Members of this House, that I fully expect Mr. Misener's full report, together with the findings of the Provincial Rail Policy Task Force, will provide this province with a greater understanding of the future of intermodal transportation within Ontario and provide the Minister of Industry and Tourism with data which will be useful in attracting manufacturers to the industrial heartland of our province.

APPENDIX I(b)

May 6, 1980

Statement in the Legislature by Honourable James Snow Minister of Transportation and Communications

Appointments to Great Lakes/Seaway Task Force

Mr. Speaker:

When I announced the appointment of Ralph Misener as chairman of the Provincial Great Lakes/Seaway Task Force, I indicated my intention of reporting back to you on the make-up of the entire group . . . once the members had been selected.

Today, therefore, I'd like to inform the House that 11 of the 13 individuals who will sit with Mr. Misener on this important provincial investigative body have been selected . . . eleven people with a considerable weight of experience in marine transportation, municipal administration, union representation and manufacturing.

Mr. Speaker, the people I speak of include:

Mr. Bob Saracino

Mayor of the City of Port Colborne;

Mr. Nicholas Trbovich

Mayor of Sault Ste. Marie;

Mr. Dick Thomasson

*the legislative representative for the
Seafarers International Union of Canada;*

Mr. Clare Westcott

executive director

Office of the Premier

Mr. Don Irvine

a director with Hall Shipping Company

Prescott, Ontario;

Mr. John Presenger

a retired mill superintendent

once with Abitibi Mills in Thunder Bay;

Mr. Duncan Maxwell

the president of Port Weller Dry Docks;

Mr. Aird Lewis

the executive director of

Nature Conservancy of Canada from Toronto;

Mr. Jack Shirley

retired president of

Bowater Canadian Limited of Oakville;

Mr. Jacques LesStrang

senior editor of the Seaway Review

published in Maple City, Michigan; and

Mr. Robin Summerley

of the Economic Policy Office

with my Ministry.

I anticipate two additional members of the Task Force will represent steel production in Ontario and one of our milling companies.

As you can see, Mr. Speaker, representation is from across the Province . . . and across the border as well. And I am confident these individuals, under the able direction of Chairman Misener, will provide Ontario with the kind of background information that will ultimately form the backbone of a provincial policy — a policy which will not only lead to a more efficient marine facility along our portion of the St. Lawrence Seaway system, but be the basis for our continuing negotiations with our neighbouring American states, Ottawa, and those municipalities with critical interests.

Each of the people selected to sit on the Task Force has indicated a keen interest in working toward the improvement . . . where feasible or possible . . . of the marine mode in our overall transportation network.

In fact, Mr. Speaker, Ralph Misener is with us today . . . sitting in the gallery as an indication of his interest.

I have also set up a task force secretariat under the co-ordination of Margaret Kelch . . . to supply the members with management and support services.

In addition, I'll be setting up a technical advisory committee to provide specific knowledge on various issues identified by the task force.

Finally, Mr. Speaker, as I have said earlier, I expect Mr. Misener's full report . . . together with the findings of the Provincial Task Force on Rail Policy . . . will provide Ontario with a greater understanding of our future in intermodal transportation.

Thank you.

APPENDIX II

Relevant Policy Legislation

(a) CANADA

- I. 1. *Transport Act* (administered by the Canadian Transport Commission)
 - II. Acts administered by the Department of Transport:
 2. *National Transportation Act*
 3. *Canada Shipping Act*
 4. *Department of Transport Act*
 5. *Ferries Act*
 6. *Government Vessels Discipline Act*
 7. *Navigable Water Protection Act*
 8. *Pilotage Act*
 9. *St. Lawrence Seaway Authority Act*
 - III. Acts pertaining to harbours:
 10. *Belleville Harbour Commissioners Act*, see *Fishing and Recreational Harbours Act*
 11. *Hamilton Harbour Commissioners Act* (1912), NC/NR
 12. *Toronto Harbour Commissioners Act* (1911), NC/NR
 13. *Ontario Harbour Agreement Act* (1963), NC/NR
 14. *Harbour Commissions Act*, (administered by Dept. of Transport)
 15. *National Harbours Board Act*, (administered by Dept. of Transport)
 16. *Government Harbours and Piers Act*, (administered by Dept. of Transport)
 - IV. Acts administered by the Department of Public Works
 17. *Public Works Act*
 18. *Dry Docks Subsidies Act*
 19. *Expropriation Act*
 20. *Government Works Tolls Act*
 - V. 21. *Carriage of Goods Act*
22. *Bills of Lading Act*
- Statutes relating to other modes of transportation which may affect water transportation:
- VI. Air:
 23. *Aeronautics Act*, (administered by Dept. of Transport)
 24. *Air Canada Act*, 1977
 - VII. *Motor Vehicle*:
 25. *Motor Vehicle Transport Act*
 26. *Atlantic Region Freight Assistance Act*, (administered by Dept. of Transport)
 - VIII. Railways:
 27. *Railway Act*, (administered by Dept. of Transport)
 28. *Canadian National Railways Act*
 29. *Government Railways Act*, (administered by Dept. of Transport)
 30. *Maritime Freight Rates Act*, (administered by C.T.C.)
 31. *Canadian National Montreal Terminals Act* (1929) NC/NR
 32. *Canadian National Railways Financing & Guarantee Act* (1970) (administered by Dept. of Finance)
 33. *Canadian National Railways Refunding Act* (1955) NC/NR
 34. *Canadian National Toronto Terminals Act* (1960), NC/NR
 35. *Crow's Nest Pass Act*, (1897), NC/NR
- Miscellaneous Statutes:
36. *Arctic Waters Pollution Prevention Act*, (administered by Dept. of the Environment)
 37. *Canada Grain Act*, (administered by Dept. of Agriculture)
 38. *Canadian National Steamship Act* (1927), NC/NR
 39. *Canadian Wheat Board Act*, (administered by the C.W.B.)
 40. *Livestock Shipping Act*, see *Animal Disease & Protection Act*, (administered by Dept. of Agriculture)

(b) UNITED STATES

- Shipping Act of 1916
Merchant Marine Act of 1936 (including Title XI)
Merchant Marine Act of 1946
Merchant Marine Act of 1970
U.S. Port and Tanker Safety Act of 1978
International Convention for the Prevention of Pollution, 1973
U.S.-U.S.S.R. Maritime Agreement of 1976
Cargo Preference Act
Public Resolution 17, 73rd Congress
National Environmental Policy Act of 1969

Rivers and Harbours Act of 1899
Rivers and Harbours and Flood Control Act of 1970
Federal Water Pollution Control Amendments of 1972
Marine Protection, Research and Sanctuaries Act of 1972
Fish and Wildlife Coordination Act of 1958
Water Quality Improvement Agreement of 1970
Water Quality Improvement Agreement of 1978
Ports and Waterways Safety Act of 1972
Clean Air Amendments of 1970
Solid Waste Disposal Act of 1965
Resource Recovery Act of 1970
Noise Control Act of 1970
Occupational Health and Safety Act of 1970

APPENDIX III

ENVIRONMENT

(a) Assessment Process

The *Environmental Assessment and Review Process (EARP)* was established by the Federal Cabinet in 1973 to ensure that the environmental consequences of designated federal projects, programmes and activities were assessed before final decisions are made and to incorporate the assessment into the planning and implementation process. Proposed undertakings must be screened by the initiator and if there is potential for significant adverse environmental effects, the proposal must be referred to the Federal Environmental Assessment Review Office (FEARO) for formal public review. A panel is then appointed that sets guidelines for the preparation of an Environmental Impact Statement (EIS) which must be prepared by the initiator. The EIS is then submitted to the panel for discussion and review. The panel, in turn, submits recommendations to the Minister of the Environment for final resolution. This process takes a minimum of 1 year but often extends well beyond that time.

The *Environmental Assessment Act (EAA)* was enacted in 1975. It provides for the protection, conservation and wise management of the environment in Ontario. Any proposed public or municipal project of significance must be evaluated through an Environmental Assessment (EA) to determine possible effects upon the environment and obtain approval for the project before it can be undertaken. Private undertakings may be brought under the Act for formal review.

If the Act applies, the initiator must prepare an Environmental Assessment to be submitted for a review by the government. The review is released to the public and a public hearing may be held before the Environmental Assessment Board.

Projects subject to the Act cannot proceed or receive any other provincial approvals until all of the requirements of the Act are met.

The minimum time required to meet these regulated requirements is 6 months but the average is 1½ years.

(b) Legislation and Agreements

THE PROVINCIAL ENVIRONMENTAL PROTECTION ACT prohibits the deposit or discharge of any contaminant into the natural environment which may impair the use of the natural environment, which may cause injury or damage to property or life, which may cause harm or discomfort to a person, or which may adversely affect the health of a person.

The Act further provides for the issuance of legally enforceable control orders which, following a report or an investigation by an inspector, may be used to require an industry to reduce the level of contaminants being discharged.

The Environmental Protection Act was amended in 1979 with respect to spills of pollutants, including toxic substances, into the natural environment. The amendment strengthens notification requirements, places a duty on the owner and person in charge of a pollutant to undertake clean-up and restoration and sets out associated liabilities. A significant incentive is created to handle pollutants carefully, train employees and develop response capabilities for possible contingencies.

THE ONTARIO WATER RESOURCES ACT confers wide powers on the Minister of the Environment to supervise and examine all surface and ground waters in Ontario and to determine the extent and causes of water pollution. The Minister may construct and operate water supply and sewage works where provision of such works has been determined to be in the public interest.

The Act prohibits the discharge of materials into the waters of the Province which may impair these waters, with appropriate fines of up to \$10,000 upon summary conviction. The Minister may also, upon application to the Supreme Court, obtain an injunction to prohibit discharges in cases where damage might result.

An industry may be required by order to make investigations and submit reports to the Ministry and to install or construct facilities for the collection, transmission, treatment or disposal of sewage.

Under the Ministry of the Environment's Water Management Goals, Policies, Objectives and Implementation Procedures, contaminants are grouped into three categories: substances with known tolerance limits, substances with zero tolerance

limits, and substances with undefined tolerance limits. In the first category, specific objectives are provided. In the second category, the intent is to prohibit all new discharges and to reduce existing releases to the lowest practical limit. In the third category, the Ministry requires that the release of these substances be evaluated on a case-by-case basis to protect the environment.

CANADA-ONTARIO ACCORD FOR THE ENHANCEMENT AND PROTECTION OF THE ENVIRONMENT

In Ontario the primary federal-provincial agreement relating to the environmental protection is the Canada-Ontario Accord for the Enhancement and Protection of the Environment. The Accord ensures programs to protect the environment are co-ordinated by the federal and provincial governments and is intended to avoid duplication between agencies. The Federal Government in co-operation with the province establishes national baseline standards for air and water pollution objectives in areas that fall under federal jurisdiction. Ontario, as well as other Provinces, has agreed to establish and enforce requirements at least as stringent as the Federal Standards.

CANADA-ONTARIO AGREEMENT ON GREAT LAKES WATER QUALITY

In order to demonstrate Canada's readiness to proceed with our international obligation to clean-up the Great Lakes and implement the provisions of the proposed Canada-United States Agreement on Great Lakes Water Quality, Canada and Ontario entered into a series of Agreements beginning in 1971 for this purpose. The Canada/United States Agreement was then subsequently signed in April 1972. The second international Agreement on the Great Lakes Water Quality, signed in November 1978, has formed the basis for further co-operative actions among jurisdictions in both countries and is now the subject of a further proposed amending Agreement between Canada and Ontario.

Matters contained in the Agreement for which specific control programmes have been undertaken between the two countries include measures in the following areas:

- pollution from municipal sources
- pollution from industrial sources
- pollution from agriculture, forestry, and other land-use activities
- pollution from shipping activities
- pollution from dredging activities
- pollution from other onshore/offshore activities
- contingency plans
- control of hazardous polluting substances
- control of persistent toxic substances
- control of airborne pollutants



APPENDIX IV

Public Participation

(a) Schedule of the Great Lakes/Seaway Task Force Public Meetings

PORT COLBORNE July 8, 1980	Chamber of Commerce Building 76 Main St. West
TORONTO July 15, 1980	Toronto Harbour Commission Bldg. The World Trade Centre 60 Harbour Street
THUNDER BAY July 22, 23, 1980	Airlane Motel 698 Arthur St. W.
OSHAWA July 31, 1980	The Holiday Inn 401 and Harmony Road
SAULT STE. MARIE August 5, 1980	The Civic Centre 99 Foster Drive
HAMILTON August 12, 1980	Wellington St. Terminal Bldg. Hamilton Harbour Commission Wellington St. North
COLLINGWOOD August 19, 1980	Cranberry Inn Keith Avenue
SARNIA August 26, 1980	Holiday Inn Point Edward
CORNWALL September 9, 1980	Transport Canada Training Centre 1950 Montreal Road
WINDSOR September 16, 1980	Holiday Inn 480 Riverside Dr. W.

(b) A general outline of the major issues presented in Briefs, Supplementary Submissions, and Correspondence.

For greater detail and elaboration all documents are available for review.

ALEXANDER CENTRE INDUSTRIES LIMITED/FISHER HARBOUR

Port	— Fisher Harbour, near Manitoulin Island, promoted as having the potential as a deep water port for Northeastern Ontario
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ALGOMA CENTRAL RAILWAY

Pilotage	— Extend present pilotage exemption for Canadian Flag Ships
Cost Recovery	— Toll increases may cause diversion of traffic from lake ports
Extension of Season	— To at least 9½ months and improve the ice breaking services
Shipbuilding	— Owners need to foresee good investment return
	— Shipbuilding Subsidy should be 20%
	— Collingwood and Port Weller shipyard proposals need support
Dredging	— Improve allowable draught at major ports

ALGOMA STEEL CORPORATION

Extension of Season	— Concept endorsed
Dredging	— Continue full maintenance program and create deeper passage through the Vidal Shoals
Ship Repair	— Major facility required between Thunder Bay and Collingwood
Dock Facilities	— If new dock is built, government support and dredging is required

- Supplementary
- Additional comments made, restating the above in relationship to future demand for raw materials and steel making
- AMHERSTBURG (TOWN)
- Port
- Need co-ordination and compatibility with recreation and environment
 - Require integrated approach to police, coast guard and customs functions
 - Additional comments on land control, boat speed and the need for policy guidelines from Government
- BROCKVILLE SEAWAY COMMITTEE
- Extension of Season
- Of limited benefit to economy
 - Need proper assessment and hearing on economic, social and environmental factors
- Safety
- Concerned with vessel speed and the number of accidents
 - Investigate shipping operations and maintenance procedures
 - Reduce area speed limit from 15 to 10 m.p.h.
- Waterfront Development
- Suggest financial aid to municipalities to construct and maintain seawalls of benefit to all
- Environment
- Need to enforce legislation or require new legislation to maintain system
- BROTHERHOOD OF RAILWAY, AIRLINE AND STEAMSHIP CLERKS, FREIGHT HANDLERS, EXPRESS AND STATION EMPLOYEES, LOCAL 650 (GRAIN HANDLERS, VERBAL PRESENTATION)
- The Product
- Seven days a week grain operation possible
 - More elevator capacity needed
 - Use rail after navigation season closes
- CANADA STEAMSHIP LINES INC., BULK FREIGHT DIVISION
- Cost Recovery
- User pay should be equitable between modes with minimal collection costs and changes phased in over several years. The Federal Government should fund the "public good" aspect
- Capacity
- Suggest cost-related tolls in the Welland Canal, volume incentives and discounts.
 - Peak demand should be spread out, transit times reduced and a dispatch system implemented to avoid queues at the Welland Canal
- Extension of Season
- Must be cost-effective and not burdensome
- Labour
- Should have binding or compulsory arbitration
 - Additional comments on manpower shortage, environmental regulations, government grants, and port development
- CANADA STEAMSHIP LINES INC., PACKAGE FREIGHT DIVISION
- Extension of Season
- Needed for more reliable, well utilized system
- Capacity
- Give general cargo vessels, with high value commodities, priority at the Welland Canal
- Cost Recovery
- Equity of tolls between transport modes needed
- Pilotage
- End compulsory pilotage
 - Additional comments on energy and inter-modal trans-lake service
- CANADA STEAMSHIP LINES INC., MARKETING AND PLANNING
- Supports the Dominion Marine Association positions on Shipbuilding, Canadian Deep Sea Fleet, Coastal Shipping and Dredging of Vidal Shoals at Sault Ste. Marie
- CANADIAN CHEMICAL PRODUCERS' ASSOCIATION
- Extension of Season
- One month is feasible
 - Should be given high priority and requires co-operation
- Capacity
- Vessel sizes limited. Uncompetitive
- Cost Recovery
- Tolls impede competition. The system must be economical and efficient
- CANADIAN ENVIRONMENTAL LAW ASSOCIATION
- Environment
- Highlights Federal and Provincial Legislation
 - Case study re: Oshawa Second Marsh
 - Concerns include harbour expansion, landfill proposal, illegal building of dykes and marsh access
 - Is a need for public process before expansion and overall plan required for the Seaway and traffic, and suggests consideration of harbour consolidation

CANADIAN EXPORT ASSOCIATION

Canadian Deep Sea Fleet

- Subsidy programme for Canadian flag operations not required now or in the future
- Prefer to discourage flag discrimination in international shipping and encourage competition for Canadian cargoes

CANADIAN GRAIN COMMISSION, AGRICULTURE CANADA

Rates

- Reviews historical rate setting function, prior to Seaway opening, for grain movement
- Currently keeps a watchful position, not exercising rate setting powers

CANADIAN IMPORTERS ASSOCIATION

Shipping

- System must be commercially attractive and promoted

Extension of Season

- Needed, and costs are small related to total Seaway costs

Cost Recovery

- Increased tolls reduce Seaway status

CANADIAN INDUSTRIAL TRAFFIC LEAGUE

Extension of Season

- Should examine economics

Feeder Services Coastal Trade

- Should examine economics

Trans-lake Service

- Rail-ro/ro already successful. Government aid needed

Cost Recovery

- Be cautious about direct subsidies

CANADIAN MANUFACTURERS' ASSOCIATION (ONTARIO DIVISION)

Cost Recovery

- Consult with Industry on Welland Canal tolls

Coast Trade

- Continue British flag competition
- Opposed to reserving all for Canadian ships

General Cargo

- Resurgence needed. Consider feeder service and LASH system for containers

Trans-lake Service

- Useful competitive transportation alternative

CANADIAN SHIPBUILDING AND ENGINEERING LIMITED, COLLINGWOOD SHIPYARDS

Shipbuilding

- Shipbuilding Industry Assistance Program unrealistic at 9%
- Need improved consultation between industry and federal and provincial levels of government
- Proposal for 1000' facilities needs support

Promotion

- Harmed by tolls and pilotage rates
- Need greater recognition of Ontario as "Maritime Province"

CANADIAN SHIPBUILDING AND SHIP REPAIRING ASSOCIATION

Shipbuilding

- Reinstatement of the Shipbuilding Industry Assistance Program at 20% at least until the end of 1980
- Apply 25% duty on offshore drilling ships and support vessels
- Build Arctic class vessels in Canada
- Apply duty on foreign built fishing vessels
- Prohibit importation of fishing vessels over five years of age
- Introduce various financial and taxation incentives for Canadian built vessels
- Provide financial aid for Port Weller and Collingwood facilities to construct and repair 1000' vessels
- Federal support and policies needed for development

Canadian Deep Sea Fleet

CLEVELAND CLIFFS IRON COMPANY

Energy

- Consider coal as the primary energy alternative for vessels with the use of oil in confined or restrictive areas
- Need to consider environmental regulations for coal-burning ships

COLLEY MOTORSHIPS LTD.

Canadian Deep Sea Fleet

- The blending of Domestic and Deep Sea interests and experience will lead to mutual benefits

COLLINGWOOD INDUSTRIAL AND TOURISM COMMISSION

Shipbuilding

- Build a new 1000' facility at Collingwood

Port

- Federal and Provincial funding is necessary to deepen the approaches and the turning basin to accommodate deeper draught ships
- Use the Ontario Municipal Industrial Parks Assistance Program to support municipal involvement in marine facilities

- Industry — Facilities for malting and milling should be encouraged
- Tourism — Collingwood suggested as a resort centre for pleasure craft

COLLINGWOOD TERMINALS LIMITED

- Port — Need to coexist with recreation
- Must recognize the industrial potential of the harbour

COUNTY OF ESSEX AND ESSEX REGION CONSERVATION

- Port — Need to keep industry compatible with the public use of shoreline
- Shipping — Put new facilities in the area to maintain a viable system
- Policy — Mechanisms needed for the consideration of local policies in Seaway development
- Additional comments on commercial fishery, recreational boating and public access to shoreline

CORNWALL (CITY)

- Extension of Season — Should be considered
- Capacity — Consider shunter system and consolidation of maintenance and operating facility in Cornwall
- Harbour Facilities — Possible relocation and redevelopment to handle packaged, liquid and bulk goods

IAN DEANS, M.P. — HAMILTON-WENTWORTH

- Shipbuilding — Establish both Deep Sea and lake shipbuilding industry
- Port — Modernize and build rail/road terminals at ports
- Co-ordination required to build industrial base at Ports
- Manpower — Establish marine education programmes in Colleges

DOMINION MARINE ASSOCIATION

- Pilotage — Propose outright exemption from compulsory pilotage in all areas for Canadian flag ships
- Extension of Season — No substantial evidence of harmful environmental impact
- Cost Recovery — Full studies required on "User Pay" concept
- Defer further toll increases pending outcome of public hearings and user participation in decisions
- Canadian Deep Sea Fleet — Encourage with incentives e.g. tax holidays, capital cost allowances, reserve fund for replacements
- Coastal Shipping — Prohibition against non-Canadian flag ships unless Canadian ship not available
- The Products — Iron ore: Recession and shipping low points will reduce flow below anticipated levels
- Coal: No dramatic increases expected
- Grain: 1% to 2% increase in flow forecasted
- U.S. developments expected to increase the use of lakers
- Petroleum: slow growth of tankers over next 5 years

DREDGING INDUSTRY IN ONTARIO, THE

- Dredging — Regular schedule needed
- Plan on five-year basis to maximize the benefits
- Environmental agencies should bear additional costs of environmental protection requirements for projects
- Use scarce financial resources to eliminate pollution at source
- Need program of channel deepening to increase efficiency
- Encourage production of construction aggregates from dredging

DURHAM CRUISEMARINE

- Recreational Boating — Promote through Ministry of Industry and Tourism noting implications of small craft in port and canal operations
- Funding of all agencies should be addressed in an overall strategy for industrial development
- Port — Oshawa growth requirements need consideration

EASTERN ELEVATOR ASSOCIATION OF CANADA

- Capacity — Need Provincial involvement in the decision to expand the Welland Canal
- Interested parties should be part of the Welland Canal decisions

Cost Recovery	— Need a position on the amount users should pay for operations and future investments
Rail Rates	— Crowsnest rates put Bay Ports at a disadvantage
ENVIRONMENT CANADA	
Dredging	— The use of confinement is increasing
.	— Subcommittee guidelines and register of projects available by fall of 1980
Extension of Season	— Need to control pollution within watersheds
	— Concerned about ice cover and water level
Oil Spills	— More than 9½ months is neither practical nor desirable
	— Need every precaution by shipping companies and shore based industries
	— Information on legislation, services, and international agreements concerning water quality, shipping and Lake Erie
SCOTT FERGUSON, YORK UNIVERSITY	
Extension of Season	— Beneficial but need to evaluate the costs and alternatives
Capacity	— Possible need to determine optimum size vessel for the Great Lakes
	— Consider shuttle service for containers
Port of Hamilton	— Requires marketing and land use control by Harbour Commissioners
JAMES FOULDS, M.P.P. — PORT ARTHUR	
Port	— Positive action and strong stand by Ontario is necessary to increase its position and the use of Thunder Bay
Shipbuilding	— Need to retain and revitalize Thunder Bay
The Products	— Possible integration of iron ore industry with Ontario's steel industry
Shipping	— Need equitable rates to encourage development in Northwestern Ontario
GEORGE R. FRANCIS, UNIVERSITY OF WATERLOO, HENRY A. REGIER, UNIVERSITY OF TORONTO	
Environment	— In early planning, build in environmental considerations
	— Put pollution control at sources of contamination
	— Need policies and guidelines for coastal zone developments
	— Need freedom of information principle and preventive measures for handling of oil and hazardous cargo
Extension of Season	— Considerable possibilities for damage
	— When necessary, a Federal/Provincial group should review documentation, with public participation before decision is made.
GEORGIAN COLLEGE OF APPLIED ARTS AND TECHNOLOGY, MARINE NAVIGATION TECHNIQUES	
Manpower/Education	— Investigate desirability of locating all elements of marine training together
	— Highlights the development of current programs for Officers and Seamen
GREAT LAKES FISHERY COMMISSION	
Extension of Season	— Consider all environmental ramifications before approval, especially fisheries productivity and habitat
Environment	— All studies of the Great Lakes need fisheries expertise
GREAT LAKES WATERWAYS DEVELOPMENT ASSOCIATION	
The Products	— No increase in iron ore
	— Long term small increase in export grain
Cost Recovery	— Recover only direct operational costs
	— Involve users in toll re-examination and future decisions
HALCO INC.	
Cost Recovery	— Need user representation on a new Seaway Board of Directors
	— End charges on redundant services
Pilotage	— Not needed for Canadian flag vessels with Certificated Officers
	— Needed for foreign vessels
Shipbuilding	— Need long term plan of support for industry
Extension of Season	— Of prime importance
Manpower	— Need financial support for training institutions and safety courses
Canada Deep Sea Fleet	— Will develop in time

HAMILTON (CITY)

Promotion	— A provincial marketing programme for seaway and deep water ports needed
Environment	— Examine and rationalize existing legislation at all levels that impacts on recreation, tourism, manufacturing and port related areas
Tourism	— Make more funds available for tourism in areas currently having a heavy emphasis on manufacturing to expand their economic base
Pilotage	— Review the requirements
Labour	— Masters' experience is an important factor
	— Lift bridge employees should be employed by Hamilton Harbour Commission
	— There has been one closure in a decade due to Seaway labour dispute
Rates	— Recognize Hamilton and Toronto as deep sea ports in rate structure
Shipbuilding	— Subsidies should be continued
Extension of Season	— Year-round operation is feasible subject to 6 weeks for maintenance
Taxation	— Review the question of taxation and assessment concerning dock structures
People Movement	— Consider potential for Hamilton to Oshawa service
Coastal Shipping	— Licensing concepts should be reviewed
Highway Access	— Twin the Burlington Skyway Bridge and add a perimeter road to the Bay area

HAMILTON HARBOUR COMMISSIONERS

Promotion	— Resources, facilities, the Seaway and available land sites need Provincial promotion locally and internationally
Extension of Season	— Year-round for Lake Ontario, Welland Canal, and Upper Lakes Sections of the System
Cost Recovery	— Reconsider toll structure and assess by commodity
Labour	— Ongoing review needed of work practices by management and labour
Coastal Shipping	— Review of licensing system warranted
People Movement	— Need to establish criteria for ferries, hydrofoils, and hovercraft
Environment	— Need for a reasonable time schedule in Environmental Process
Taxation	— "Dock" taxes add to cost of moving goods
Police	— Province should provide public security or subsidization of costs incurred by Harbour Commission
Planning	— Rights of Port Authority to control land and water uses need to be clarified
	— General comments on rail rates, highway access and Hamilton Region Conservation Authority

HUB TRANSPORTATION AGENCY

Rail Rates	— Examine the inequity
	— Ports need competitive rates

INTERNATIONAL LONGSHOREMEN'S ASSOCIATION, LOCALS 1842 and 1869

Rail Rates	— Canadian railways should designate Toronto as a deep sea port
	— Cargo consolidation useful as an incentive
Cost Recovery	— Toll increases deter shippers
Port	— Government encouragement needed for all port related industries
Shipping	— Consider potential of inter-lakes trading and container-movement from Lakes to the East Coast

LAKE ONTARIO STEEL COMPANY

Oshawa Harbour	— Needs to be upgraded and expanded to handle increased steel tonnage
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LAKEHEAD HARBOUR COMMISSION

The Products	— No grain handling problem expected when projection of 20 million tonnes/year reached
Dredging	— Costs should be divided
	— New disposal site ready
Extension of Season	— The use of a bubbler system is being experimented
Shipping	— Potential holding area for Western development shipments
Promotion	— Use overseas trade offices and encourage Government Departments
	— Ontario should encourage local improvements to facilities
Supplementary Submission	— Keefer Terminal Statistics
	— Report on air bubbler experiment

LIQUOR CONTROL BOARD OF ONTARIO

Seaway Usage – Highlights advantages and disadvantages

PAUL McRAE, M.P. – THUNDER BAY-ATIKOKAN

Port of Thunder Bay – Identifies with Western Canada and requires dynamic promotion
– Possibly western representation on Lakehead Harbour Commission

MANITOBA MINISTRY OF ECONOMIC DEVELOPMENT AND TOURISM

Capacity – Need to improve Welland Canal to avoid delays
– Extension of Season should be considered
– Should have no restrictions on Thunder Bay or Churchill as ports in terms of access

MICHIPICOTEN (TOWNSHIP)

Port – Michipicoten Harbour viewed as the terminal point for shipments of lignite, smelted ore products, pulp and paper, ore concentrates
– Ensure its potential is considered in the future economic development of Northeastern Ontario

NASH, J. P., AMHERSTBURG

Water Levels – Man-made high water is causing flooding specifically in the Windsor area
– Water diversions in the north affects the levels of the lower lakes
– Liability for flooding should rest with Government and Hydro
– Suggests immediate lowering of System water levels

NIAGARA REGION CHAMBER OF COMMERCE

Cost Recovery – Opposed to further increases in tolls as fees have negative impact

ONTARIO ENERGY CORPORATION

Port Development – Consider how water transportation and a deep water harbour could facilitate industrial development at the Bruce Nuclear Power Development

ONTARIO FEDERATION OF ANGLERS AND HUNTERS

Extension of Season – Opposed on environmental grounds and the cost benefits
– Opposition to the U.S. proposal for a January 31 extension
Environment – Concerned about loss of wetlands, particularly Oshawa Second Marsh

ONTARIO FEDERATION OF LABOUR

Industrial Strategy – It is essential to have an industrial and economic development strategy
Canadian Deep Sea Fleet – Establish, with federal support, build and man with Canadians to carry 40% of exports and imports

Cost Recovery – Rescind toll increases as applied to Canadian made items and oppose future increases

Coastal Trade – Only Canadian ships with Canadian crews should engage in the trade between Canadian Ports

Shipping – Consider Northwestern Ontario in rate structure
Government departments and agencies should use the System whenever possible

Promotion – Provincial programmes through trade offices is needed

Shipbuilding – Expand the facilities at Thunder Bay, Collingwood, Port Weller, and Port Colborne

Trans-lake Service – Needs encouragement, especially Toronto to New York State route

Extension of Season – International Joint Commission should do an environmental assessment first

Safety – Opposed to deregulation of transportation industry

ONTARIO HYDRO

Extension of Season – Opposed unless accomplished without disrupting ice control procedures
– Possible damage by ice and loss of power must be evaluated before any extension

Cost Recovery – Tolls, especially on the Welland Canal, would increase costs

ONTARIO MINISTRY OF AGRICULTURE AND FOOD

Rates – Great Lakes Arbitrary Freight Rate Differential makes Ontario Produce uncompetitive in foreign markets

- The Products
 - Future volumes of Ontario grain and oilseed crop means new volumes for the System

ONTARIO MINISTRY OF NATURAL RESOURCES

- The Product
 - Mineral and Forest Products will continue to use the System
- Environment
 - Before any major changes to the System are made, system wide impacts must be identified and evaluated

ONTARIO PRODUCTIVITY FOUNDATION

- Port
 - Lake ports should serve as feeder ports to Montreal with special vessels, RO/RO, pipelines etc.
- Manpower
 - Need well educated transport professionals to improve performance, efficiency and be an overriding Commission of skilled management
 - Require transport trained manpower for shipbuilding, manning of specialized vessels, pilotage, repair facilities, modern technology and barge systems
- Extension of Season
 - Favours year round operation
- The Product
 - Suggest possible free port areas
 - Should ship processed materials overseas rather than raw materials
- Canadian Deep Sea Fleet
 - Pessimistic and doubts that Canada can compete

ONTARIO SOYA-BEAN GROWERS' MARKETING BOARD

- Extension of Season
 - Consider possibility of 11 months
 - Would assist Ontario soybean industry in world markets

OSHAWA (CITY)

- Port
 - Early improvements are needed and the government should be involved in funding and developing the facilities
- Extension of Season
 - Extend as appropriate
- Waterfront Development
 - Ensure lands suitable for port-related industrial development are retained for future use

OSHAWA CHAMBER OF COMMERCE

- Oshawa Harbour
 - Needs more recreational facilities and appropriate commercial growth
- Dredging
 - Relax rules or subsidize costs
 - Find alternative methods for disposal
- Harbour Commission
 - Should remain autonomous
 - Funding problems
- Extension of Season
 - Consider an additional two months
- Cost Recovery
 - Future toll increases should be small
- Capacity
 - Study needed on larger locks
- Pilotage
 - Not needed on Lake Ontario

OSHAWA HARBOUR COMMISSION

- Port of Oshawa
 - Support needed for expansion of facilities
- Recreation
 - Marina needs grants to complete the facilities
- Trans-lake Service
 - Oppose subsidy as incentive – fosters inefficiency
- Dredging
 - Review Committee needed to reassess environmental regulations
- Extension of Season
 - Suggest additional two weeks with ensured service
- Shipping
 - CIDA cargoes should go through Ontario ports
- Promotion
 - Suggest a permanent sales Campaign with co-operative funding
 - Provincial and port representation suggested on the St. Lawrence Seaway Authority
- Port Facilities
 - Provincial participation in funding suggested
 - Additional comments on tolls, pilotage and Canadian Deep Sea Fleet
- Supplementary Submission
 - List of Panama Canal closures and timing of Seaway maintenance

PARKS CANADA

- Environment
 - Water levels and flows affect fish habitats, wetlands and erosion rates
 - Need to be involved in any review of remedial measures or projects affecting Parks Canada lands and activities
- Recreation
 - Need to recognize recreational value of the System

PORT COLBORNE CHAMBER OF COMMERCE

- Ship Repair
 - Additional berths and improvements need financial aid
- Port
 - Tunnel needed to solve vehicular traffic problems
 - Canal entrance should be widened to improve access
 - National Harbours Board elevator approach requires dredging to improve efficiency

Tourism	— Park needed at Lock 8 for tourists
Industry	— The St. Lawrence Seaway Authority should encourage industrial development
Extension of Season	— Add time in stages at the end of the season
PORT COLBORNE INDUSTRIAL DEVELOPMENT COMMISSION	
Shipbuilding	— Government support needed to develop ship mooring and shipbuilding facilities in Port Colborne
PRESCOTT (TOWN)	
Port	— Maximize, retain and expand area facilities for employment purposes
Extension of Season	— Environmental impact study must be done first
Environment	— Concerns include water purity and water levels
	— Need to enforce speed regulations to reduce shoreline damage
Tourism	— Should be encouraged by local and provincial governments
Safety	— Maintain high standards, strictly enforced
Promotion	— Need for public education concerning legal jurisdictions, safety and pollution
PRESCOTT MACHINE AND WELDING INC.	
Extension of Season	— Studies necessary to assure damage to Power Authorities does not occur
	— Suggest progressive extension for development
Environment	— Continue studies to preserve and improve the area
REGION OF DURHAM	
Oshawa Harbour	— Official Plan recognizes Oshawa Harbour as the Industrial Port of the Region
	— Many regional improvements have been carried out to maximize the benefits of the Harbour
	— Considers Oshawa Harbour to be an essential component of its transportation network
Supplementary Submission	
Port Development	— Municipalities should have planning control in port areas
Harbour Commission	— City and Region should be able to nominate representatives
REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH	
Promotion	— Province should undertake international marketing when system commercially viable
Cost Recovery	— Increased tolls reflect poorly on natural economic resource
Pilotage	— Consider the experience of foreign flag captains and safety requirements
Extension of Season	— Open at least 10 months of the year
Tourism	— Provide funds for recreational development in industrial centres
	— Market the Great Lakes/Seaway system
REGIONAL MUNICIPALITY OF PEEL	
Waterfront/development/planning	— concerned with special interest demands on the lakefront, and the variety of agencies involved
ST. CATHARINES (CITY)	
Cost Recovery	— Opposed to increased tolls since they add to the cost of goods
Shipbuilding	— Continue federal subsidy to permit modernization and competition
Docking Facilities	— The area needs more
Shipping	— Could become a free trade zone
Industrial Development	— Release Seaway lands for industrial use
Tourism	— Need to solve problems of bridges and vehicular traffic
	— Further development of possible parkway area is increasing
Supplementary Submission	— Restates above issues and notes possible proposal for a new Welland Canal
ST. LAWRENCE SEAWAY AUTHORITY	
Cost Recovery	— No measurable effect on cargo movements when tolls were increased
	— Commodity flows being monitored to assess the situation
Capacity	— Has a planned program of improvement underway
	— The Welland Canal is expected to exceed its capacity soon after 1988
	— Should be possible to gain a 40% increase in capacity through physical improvements and increase in the average cargo carried per transit
	— Close liaison is necessary between Public and Private seaway interests
Extension of Season	— A detailed and extensive study is necessary before evaluation or any action is taken

SARNIA (CITY)

- Extension of Season
- Port
- Shipping
- Ship Repair
- Safety
 - Beneficial for local industry and international exports
 - New storage sheds and larger area for public viewing of ports required
 - Possible location for a free trade zone
 - Logical centre for new dry dock facilities
 - Vessel traffic management centre and crisis response facilities should be located at Sarnia
- Environment
 - Need international co-operation on oil spills
 - Additional comments on rates, and energy

SARNIA AND DISTRICT CHAMBER OF COMMERCE

- Ship Repair
 - An advantageous location for a dry dock
- Safety
 - Fire boat required
 - Coast Guard rescue station needed in the area

SAULT STE. MARIE (CITY)

- Environment
 - Financial aid needed for second sewage treatment plant
- Harbour
 - Seek a public harbour facility provided by the Federal Government
- Super Lock
 - New facility should be considered to eliminate dependence on the United States
- Coast Guard
 - Should have a full satellite base at the Sault
 - General comments made on waterfront development
- Recreational Boating
 - Suggest Provincial Policy
 - Examine the possibility of Tour Boats

SAULT STE. MARIE CHAMBER OF COMMERCE

- Dredging
 - Need to deepen Vidal Shoals for Algoma docks
- Super Lock
 - New lock needed on the Canadian side for 1000 foot vessels
- Coast Guard
 - Canadian site requires relocation to Government Dock area
- Extension of Season
 - Supports idea in principle
- Tourism
 - More service on Bruce Peninsula-Manitoulin route and a possible service to Michigan
 - Development of the Seaway's history recommended
 - Tour Boat Industry could use provincial aid and relaxation of licensing regulations

SAULT STE. MARIE HARBOUR COMMITTEE

- Harbour
 - Could be major focal terminal in Northern Ontario
 - Support and co-operation needed from all levels of government

SEAFARERS' INTERNATIONAL UNION (HAMILTON)

- Cost Recovery
 - Canadian built ships should have lower toll rates than foreign vessels.

SEAFARERS' INTERNATIONAL UNION OF CANADA (THUNDER BAY)

- Capacity
 - Delays caused by lack of draught and right type of grain in elevators
 - Dredging needed
- Safety
 - Cities lack of waterfront firefighting system and tugs
- Promotion
 - Need to increase the number of deep sea ships using the port
- Ice Breakers
 - Larger and more powerful ones needed
- Canada Customs
 - Understaffed
 - Delays to cargo and crews

SEAFARERS' TRAINING INSTITUTE

- Manpower
 - General information on the training programs of the Institute
 - Catalyst for future manpower
- Shipping
 - Promote inland fleet traffic
 - Modernize system to accommodate possible Canadian-built larger ships

SECOND MARSH DEFENCE ASSOCIATION

- Environment
 - Loss of wetlands harmful
 - Need public participation in environmental decision-making
- Port
 - Expansion unnecessary
 - Need policy for full studies and public hearings regarding port expansion
 - Possible consolidation of existing harbours proposed

GORDON C. SHAW, YORK UNIVERSITY

- The Products
 - Lack of incentives to build ships to handle expected grain volumes
 - General comments on Ontario grain, the Bay-Ports and other bulk trades
- Capacity
 - Shortage of ships expected
 - Need co-ordination in ship scheduling, more storage capacity and berths for grain

Shipbuilding	<ul style="list-style-type: none"> – Need tax incentives to encourage special new vessels into deep sea operations part of the year – Need to increase dry-dock facilities – Need long term grain contracts to stimulate shipbuilding
Extension of Season	<ul style="list-style-type: none"> – Provide a 9 to 10 month season but better icebreaking facilities necessary
Trans-lake Service	<ul style="list-style-type: none"> – No public expenditure warranted
	<ul style="list-style-type: none"> – Additional comments on tourist operations and other commodities
THUNDER BAY (CITY)	
Railroads	<ul style="list-style-type: none"> – Rerouting necessary around the city
The Product	<ul style="list-style-type: none"> – Encourage the elevator owners to expand storage capacity for grain
Dredging	<ul style="list-style-type: none"> – Disposal site ready – Channels need improvement
Extension of Season	<ul style="list-style-type: none"> – Favour up to 10 months but be aware of technical problems of winter navigation
Shipping	<ul style="list-style-type: none"> – Barge/tug service and westbound container movements are a possibility – Additional comments on tolls, pilotage, ice-breaking and passenger travel
THUNDER BAY CHAMBER OF COMMERCE	
Canadian Deep Sea Fleet	<ul style="list-style-type: none"> – Incentives should include guaranteed mortgages, reduced import duties, 20% subsidy, tax exemptions and joint ventures
TORONTO (CITY)	
Harbour Commission	<ul style="list-style-type: none"> – Keep City majority on Toronto Harbour Commission – Limit land use control to that needed for port uses only
Waterfront Planning	<ul style="list-style-type: none"> – Land may be better used by other non-port industries – Possible to accommodate both port and non-port facilities and recreational needs
Environment	<ul style="list-style-type: none"> – Land fill projects need City involvement – Development must consider environment
Supplementary Submission	<ul style="list-style-type: none"> – Restates the position on Waterfront Development
TORONTO (MUNICIPALITY OF METROPOLITAN TORONTO)	
Port of Toronto	<ul style="list-style-type: none"> – Government support and promotion needed
Harbour Commission	<ul style="list-style-type: none"> – Metropolitan representation as soon as possible on Toronto Harbour Commission
Waterfront Planning	<ul style="list-style-type: none"> – Limit land use authority of Toronto Harbour Commission to port operations
TORONTO HARBOUR COMMISSION	
Cost Recovery	<ul style="list-style-type: none"> – Tolls are discriminatory – Reassessment of increases required
Pilotage	<ul style="list-style-type: none"> – Unnecessary in open waters
Extension of Season	<ul style="list-style-type: none"> – Propose 10 months with fixed opening and closing dates by 1985
Rail rates	<ul style="list-style-type: none"> – Establish equitable rail rates based on distance from certain regions – Free time on rail equipment should be the same for all ports handling foreign commerce
Trans-lake Service	<ul style="list-style-type: none"> – Incentives needed from Government – Time for "Go-Ship Line"
Canadian Deep Sea Fleet	<ul style="list-style-type: none"> – Promote development now – CIDA should designate loading ports
Dredging	<ul style="list-style-type: none"> – Reassess environmental policies – Determine cost-effectiveness of disposal methods
Promotion	<ul style="list-style-type: none"> – Promote as a trade route – Advertise for Ontario industry to increase the use
Supplementary Submission	<ul style="list-style-type: none"> – Need to examine the rates and practices of ocean conferences particularly containerization
UNITED CO-OPERATIVES OF ONTARIO	
Cost Recovery	<ul style="list-style-type: none"> – Abolish tolls and place Seaway system on the same basis as railways, highways and other waterways
Shipping Rates	<ul style="list-style-type: none"> – Ontario lake ports should have same domestic incentives as other ports during navigation season
Pilotage	<ul style="list-style-type: none"> – Exempt ships with certified competent officers – Create national pilotage authority as grantor/arbitrator
Labour	<ul style="list-style-type: none"> – All labour operations on Great Lakes/Seaway should be defined as essential services without the right to strike and committed to binding arbitration

Port Charges	– Need uniformity and consistency within province
Capacity	– Need to accommodate 1000 foot ships
	– The proposed New York State Barge Canal upgrading should not be taken lightly
Extension of Season	– Longer season would be most beneficial

UNITED STEELWORKERS OF AMERICA, LOCAL 6320 (COLLINGWOOD)

Shipbuilding	– Restore subsidy to 20%
	– Build vessels for offshore industry, Arctic work, and Deep Sea Fleet in Canada
	– Provincial support needed for Collingwood Shipyards proposal and upgrading of facilities

UPPER LAKES SHIPPING LTD.

The Product	– 50% increase in demand for laker capacity expected in 1980's with increased grain movements
	– Need increased investment return for fleet expansion
	– Stabilize the demand for shipping services and prices taking into account the expected reduction in ore cargoes
	– Require long term facility planning, co-ordination of ships and grain movements, and efficiency incentives
Capacity	– New Welland Canal needed by 2000 A.D.
	– Shunters not viable
Extension of Season	– Most viable way to meet capacity demands
	– Requires redistribution of larger ice breakers
	– Study of spring ice control methods required
	– Better winter navigation aids needed
Cost Recovery	– As an incentive, could change to fixed lockage fees, and introduce differential rates based on cargo value
Privatization	– A way for shipowners paying share of Seaway costs to have effective control over Seaway activities
	– Lack of consultation with industry
Shipbuilding	– Restore Shipbuilding Industry Assistance Program to 20%
	– Provide incentives for Deep Sea Fleet construction
	– Opposed to new taxes
	– Regulations to encourage industry needed
Pilotage	– Exempt Canadian flag ships
	– A costly and unnecessary expense
Coastal Shipping	– Prohibit non-Canadian ships under reasonable circumstances

WALLACEBURG AREA SELECT COMMITTEE FOR THE CLEAN-UP, WIDENING AND DREDGING OF THE SYDENHAM/CHENAL ECARTE RIVER SYSTEM

Dredging	– Clearance, widening and dredging required in specific area and continued monitoring of system needed
Shipping	– Promote bulk shipping in local area

WINDSOR (CITY) (WINDSOR ESSEX COUNTY DEVELOPMENT COMMISSION AND THE WINDSOR CHAMBER OF COMMERCE)

Port Planning	– Reduce jurisdictional conflicts and co-ordinate the use of waterfront lands
	– Preserve industrial lands and co-ordinate the approval processes
Harbour Commission	– Needs a Provincial Representative
Cost Recovery	– Keep tolls low to encourage use and provide incentives for high value cargo
The Products	– Establish a steel pricing structure based on the water movement of steel from producing points
Extension of Season	– Encourage a 12 month shipping season
	– Additional comments concerning acquisition of Ambassador Bridge, trans-lake service across Lake Erie, ferry/cable services, waterfront parkland development, and Port of Windsor as shipbuilding site, and foreign trade zone

WINDSOR HARBOUR COMMISSION

Port	– Must meet new technologies, government laws and regulations with planning, at local level
	– Comments on non-port/industrial port land use, competitiveness of system, assistance in attracting business and private industry to ports, advertising, feeder services, and energy conservation

(c) Correspondence

American Bureau of Shipping, *Montreal, Quebec*. William Jack, *Principal Surveyor for Canada*
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Anglo Canadian Shipping Ltd., *Vancouver, British Columbia*. M. L. Richardson, *Senior Vice President*
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Canada. Ministry of Fisheries and Oceans, *Ottawa, Ontario*. Romeo LeBlanc, *Minister*.
Canada. Ministry of Industry, Trade and Commerce, *Ottawa, Ontario*. Herb Gray, *Minister*
Canadian Board of Marine Underwriters, *Toronto, Ontario*. W. Lacourt, *Chairman, Hull Committee*
Canadian Brotherhood of Railway, Transport and General Workers, Local 212, *Port Colborne, Ontario*. R. Greaves, *Business Agent*
Canadian Labour Congress/Congress du Travail du Canada, *Ottawa, Ontario*. Dennis McDermott, *President*
Canadian Port and Harbour Association, *Toronto, Ontario*. Gary F. Reid, *Secretary-Treasurer*
City of Kingston, *Ontario*. Ken Keyes, *Mayor*
City of Mississauga, *Ontario*. L. M. McGilivray, *Deputy City Clerk*
City of Owen Sound, *Ontario*. Stephen Bitten, *Industrial Commissioner*
City of Thorold, *Ontario*. R. M. Corbett, *Clerk*
City of Welland, *Ontario*. David G. Barrett, *City Clerk*
Clarke Transport Canada Inc., *Montreal, Quebec*. S. D. Clarke, *President*
Corporation of the Upper St. Lawrence Pilots/Corporation des Pilotes du Haut St. Laurent, *Kingston District, Cornwall Ontario*. Solange B. Chaput, *Secretary*
County of Huron, *Goderich, Ontario*. R. Spence Cummings, *Development Officer*
East Coast Petroleum Operators Association, *Calgary, Alberta*. Gordon H. Jones, *Executive Director*
Edward Fuels Ltd., *Goderich, Ontario*. Donald C. Edward
The Enterprise-Bulletin, *Collingwood, Ontario*. George Czerny, *Publisher*
Environment Canada. Atmospheric Environment Service, *Toronto, Ontario*. G. A. McPherson, *Regional Director, Ontario Region*
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Ontario. Ministry of Northern Affairs, *Toronto, Ontario*. Leo Bernier, *Minister*
Ontario. Ministry of the Environment, *Toronto, Ontario*. Harry C. Parrott, D.D.C., *Minister*
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Quebec and Ontario Transportation Company Limited/La Compagnie de Transport Quebec et Ontario Limitée,

St. Catharines, Ontario. R. W. Savage, President
 Railway Association of Canada, *Montreal, Quebec. J. M. Beaupré, General Manager*
 St. Catharines and District Chamber of Commerce, *St. Catharines, Ontario. Keith Milne, General Manager*
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 Shell Canadian Tankers Limited, *Toronto, Ontario. J. D. Finnie, Vice President and Manager*
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 Texaco Canada Inc., *Toronto, Ontario. R. W. Sparks, Chairman of the Board and Chief Executive Officer*
 Thunder Bay Terminals Ltd., *Winnipeg, Manitoba. A. S. Leach, Jr., President*
 Town of Parry Sound, *W. Ed Ewing, Clerk*
 Town of Wallaceburg, *L. O. Stonehouse, Mayor*
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The Arctic, the first bulk carrier with an ice-breaking hull (built by Port Weller Dry Docks).

APPENDIX V

GLOSSARY

Backhaul	The return trip of a loaded vessel.	Lock	An enclosure in a canal with gates at each end for lifting or lowering vessels as they pass from one level to another.
Ballast	Usually water, carried by a vessel to improve its stability and control when little or no cargo is being carried.	Marine Leg	An arm that projects into the hold of a vessel to lift grain into an elevator.
Berthage	Charges made to a vessel for mooring at a berth, pier, dock or mooring float, etc. in a harbour.	Merchant Marine	All the commercial vessels flying the flag of a given country constitute the merchant marine of that country.
Break Bulk	A major volume split up and consigned to different destinations.	Mode	A single means of transport i.e. water mode, air mode.
Cargo Reservation	The practice of some countries of reserving a portion of cargo for carriage by the fleet of the specific country.	Navigable	Waters able to provide conditions suitable for the movement of any size vessel.
Chart Datum Levels	Charts for each area of the Great Lakes/Seaway System based on a chosen water level from which all soundings and channel depths are established. Water levels very seldom go below the Chart Datum Level.	Pilotage	The practice of transferring the controls of a ship to an individual with special qualifications and knowledge of the given area.
Downbound	The direction of travel through the System towards the Atlantic Ocean.	Power Canal	A channel of water leading to or from a Hydro Generating Station.
Draught	A vertical dimension measured from the surface of the water to the bottom of the keel of a vessel or the depth the vessel sits in the water.	St. Lawrence Seaway	The deep waterway between the Port of Montreal and Lake Erie, including the Welland Canal.
Drydock	A dock that can be dry for the construction or repair of ships. There are three different types: Graving Dock — a ship is floated into the dock and the water is pumped out. Floating Dock — a floating platform is sunk under a ship and water is pumped out raising the ship and the dock. Syncro-lift Dock — a submerged platform lifted hydraulically.	Seaway	See St. Lawrence Seaway.
Effluent	A flow of waste material into the environment.	Sills	The portion of a lock under the gates which limits the depth of water available for passage.
Elevator	A grain handling facility designed to receive, store and ship grain in bulk.	Top-off (of grain)	Loading of a vessel to a deeper draught than allowed by the waterway up to that point.
Harbour Master	The marine advisor to the Port or Harbour Management, responsible for the safe movement of vessels using the port and for ensuring compliance with by-laws and regulations relating to the movement, navigation, berthing and behavior of all vessels while in port.	Transfer Elevator	An elevator used to move cargo between transport services.
Hulett	An arm with a grab bucket that lifts ore from a ship's hold to a storage facility.	Tolls	A charge levied on users of a transportation facility, in this case the payment due for transiting locks.
Intermodal	Transport by more than one mode or using elements of more than one mode.	Trans-shipment	The transfer of cargo from one transportation unit to another.
		Transit	The movement of a vessel in the System either upbound or downbound.
		U.S. Army Corps of Engineers	An agency in the United States with the responsibility of building and maintaining the National Waterways.
		Upbound	The direction of travel through the System from the Atlantic Ocean.
		Upper Lakes	The four Great Lakes above Lake Ontario.
		Waterlot	An area of land covered by water with a designated owner.
		Wetlands	Land containing much soil moisture (e.g. marshes, bogs, swamps) usually characterized by high organic productivity.
		Wharfage	Charge for the use of a wharf.
		Wharfinger	The person in charge of a wharf or wharves.

APPENDIX VI

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